

2024-2025

CUTTING TOOLS

◎Turning Tools ◎Milling Tools ◎Holemaking Tools

ZHUZHOU CEMENTED CARBIDE
CUTTING TOOLS CO., LTD.

By using this catalogue, you can get the following information:

- Information on new products.
- Product information: Turning tools, milling tools, boring tools, standard product series of tool holding system, description, basic dimensions, recommended grade and cutting parameters, stock, etc.
- Technical instruction: Tool selection and application, selection of insert chipbreaker and grade, typical machining case, etc.
- General technical information.

To better understand and use this catalogue, please pay more attention to the “how to choose ***”, “*** overview” sections in the front of each main catalogue introduction.

Symbol explanation

- 😊 Good working condition
- 😐 Normal working condition
- 😞 Bad working condition
- ★ Recommended grade (always stock available)
- Available grade (always stock available)
- Make-to-order
- ▲ Stock available △ Make-to-order
- ⊗ Very suitable ⊙ Suitable

Statement

- The product only provides the specifications information based on current productive conditions. We will continuously improve and innovate along with the development of technology.
- The product photos in the catalogue are for demonstration only. Due to different production technologies, product color (such as insert coating color, tool surface color) might be different from the colors shown in this catalogue. It would be advisable to refer to the real product.
- Please note that in the catalogue, the minimum ordering quantity of common inserts and ceramic insert is 10 pcs, and the minimum ordering quantity of CBN & PCD inserts is 2 pcs.
- The stock may change because new product or new grade is released.

How to select general turning inserts

Turning inserts list

- Turning inserts listed according to shape
- Sequence of listed inserts:
 - Negative inserts (with hole – without hole)
 - Positive inserts (with hole – without hole)
- Sequence of listed chipbreaker:
 - For finishing – For semi-finishing – For roughing – For heavy cutting – Without chipbreaker – Through chipbreaker

Selecting grade according to workpiece material and working condition

Price to select grade for insert according to working condition that is suitable for workpiece material

😊 Good working condition: machine works well and stably. There are high requirements for dimensional precision of components and quality surface.

😐 Normal working condition: machine works normally. There are certain requirements for dimensional precision of components and surface quality.

😞 Bad working condition: machine works with bad stability. There are high requirements for metal evacuation rate.

Main category of products

Positive or negative inserts

Grade

Size

Stock

Illustration of stock

Reference page of tool holders

Application of inserts

Shape

Insert chipbreaker

Chipbreaker code

Recommended cutting parameters

Chipbreaker selection reference

Grade selection reference

Insert code key

Shape and dimensions:
L: Cutting edge length
IC: Diameter of insert seat circle
S: Thickness
D1: Hole diameter
RE: Nose radius

Machining application	Geometry	Number of teeth	Type	Shape	Size range	Workpiece material										Page					
						Cast iron	Stainless steel	Copper alloy	Aluminum alloy	Titanium alloy	High hardness steel	High temperature alloy	Other	Specification	Stocking		Ordering parameters				
High-performance general milling	Flattened	4	VPM-4E (Uniquel plate)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8290	8540		
			VPM-4EHLX (Uniquel plate)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8290	8540	
			VPM-4EFP (Uniquel plate)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8300	8540
			VPM-4R (Uniquel plate)		03.0-012.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8301	8541
	Radius	4	VPM-4RSLX (Uniquel plate)		03.0-012.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8303	8541	
			VPM-4RFP (Uniquel plate)		03.0-012.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8305	8541	
			UM-4E (Uniquel plate)		04.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8307	8542
			UM-4EL (Uniquel plate)		04.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8309	8542
	Flattened	4	UM-4EFP (Uniquel plate)		06.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8309	8545	
			UM-4R (Uniquel plate)		04.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8310	8546	
			UM-4RL (Uniquel plate)		06.0-016.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8311	8547	
			UM-4RFP (Uniquel plate)		06.0-016.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8312	8548	
Flattened	4	PMX-4E (Uniquel plate)		01.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8315	8549		
		PMX-4EHLX (Uniquel plate)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8317	8549		
		PMX-4EFP (Uniquel plate)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8318	8549		
		PMX-4R (Uniquel plate)		01.0-016.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8319	8550		
Radius	4	PMX-4RSLX (Uniquel plate)		03.0-016.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8321	8550		
		PMX-4RFP (Uniquel plate)		03.0-016.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8322	8550		
		PMX-2B (Uniquel plate)		R1.0-R10.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8324	8551		
		PMX-2BL/MX (Uniquel plate)		R1.0-R10.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8325	8551		
Ball nose	2	PMX-2BFP (Uniquel plate)		R0.5-R10.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8326	8551		
		PML-2E (Semi-profile)		01.0-050.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8328	8552		
		PML-2F (Sharp)		01.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8329	8553		
		PML-2EL (Semi-profile)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8330	8552		
Flattened	2	PML-2FL (Sharp)		03.0-020.0	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	8331	8553		

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Contents



A Turning A1-A339

General turning tools	A23-A226
Parting and grooving tools	A227-A284
Threading tools	A285-A331



B Milling B1-B680

Indexable milling tools	B1-B276
Solid carbide end mills	B277-B653
Interchangeable modular end mills	B654-B680

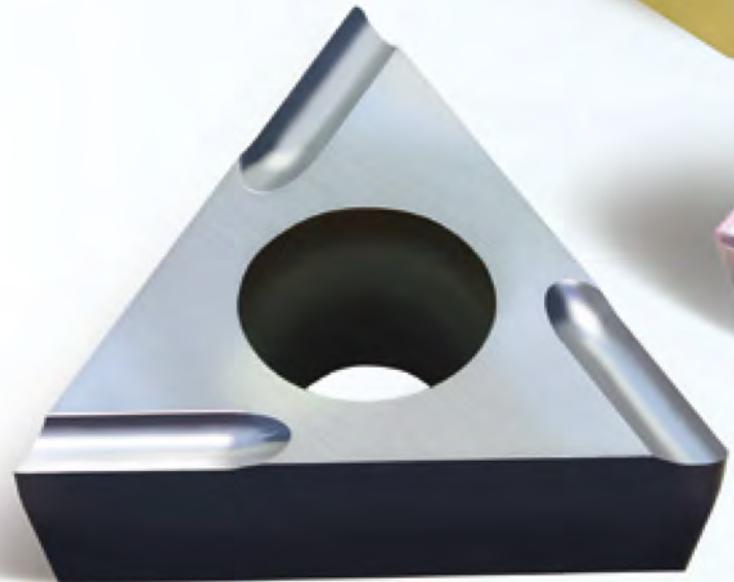
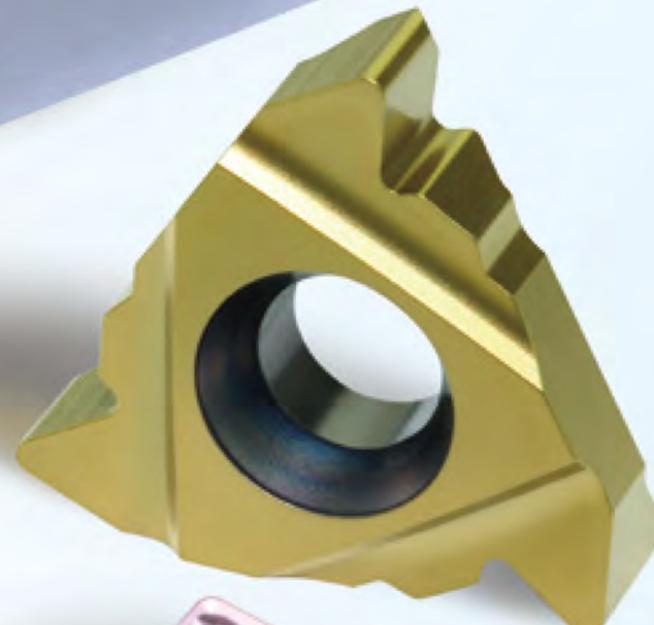
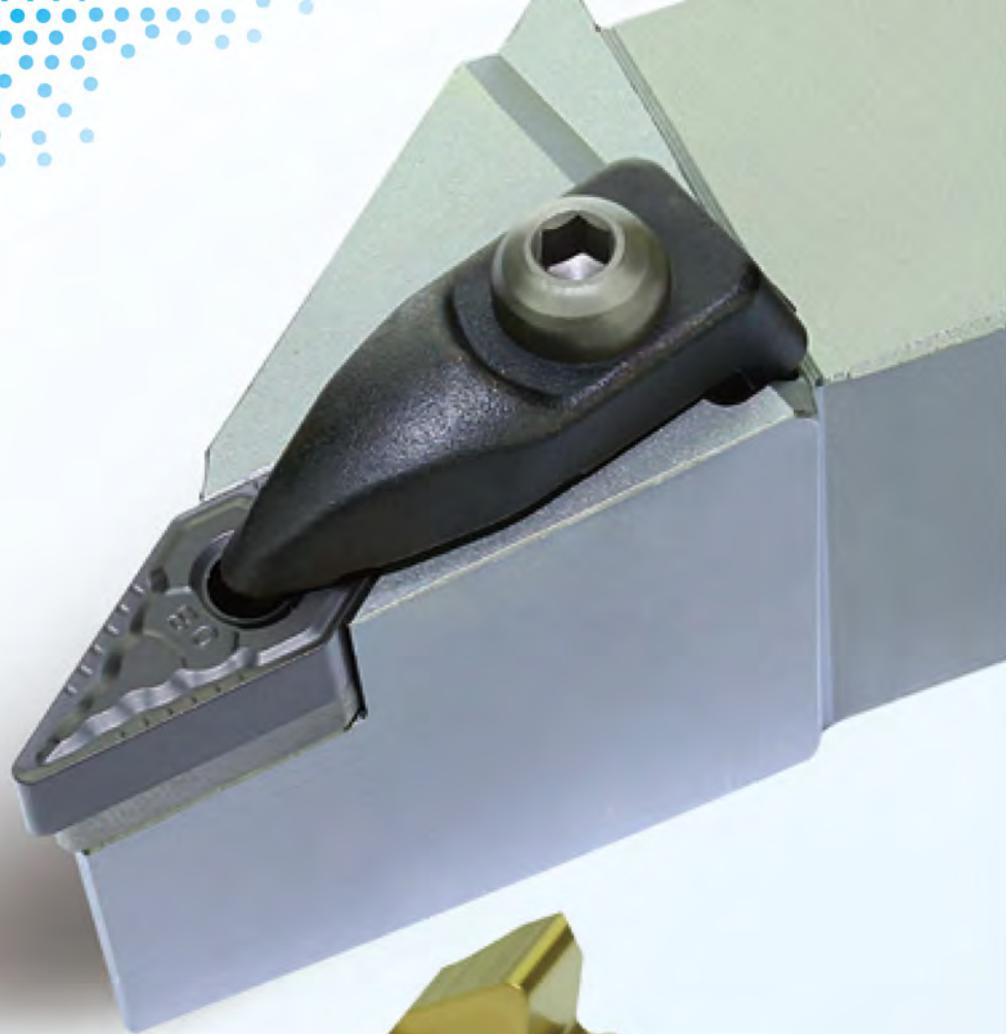
C Holmaking Tools C1-C272

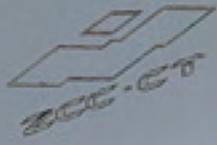
Drills	C2-C231
Reamers	C232-C245
Threading tools	C246-C272

D General Technical Information D1-D31

General technical information	D1-D31
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DV JNR2525M16
40829344

V16BM CMS×22C SM5×8.65XA1 SPR6 C6RA



SCE-CT DC
40

Turning Tools

*General turning tools
Parting and grooving tools
Threading tools*



Turning



Guide to select turning tools	A2-A5
Turning inserts overview	A6-A12
Turning tool holders overview	A13-A16
Recommended grade overview for turning inserts	A21
General turning tools	A23-A226
General turning inserts overview	A24-A30
Application instruction for general turning inserts	A31-A47
General turning inserts Cemented carbide and cermet inserts	A48-A122 A52-A122
General turning tools External turning tools Internal turning tools	A123-A226 A126-A187 A188-A221
Application information for general turning	A222-A226
Parting and grooving tools	A227-A284
Parting and grooving tools overview	A230-A232
Parting and grooving inserts	A233-A253
Parting and grooving tools	A254-A282
Application information for parting and grooving	A283-A284
Threading tools	A285-A331
Threading tools overview	A288-A291
Threading inserts	A293-A306
Threading tools	A307-A309
Thick threading inserts	A310-A317
Tools for thick threading insert	A318-A320
Application information for threading	A321-A331
General technical information for turning	A332-A339



Guide to select general turning tools

Selection B

D-type clamping system

DCLNR/L 90°/NL DCLNR/L 75°/NL DCLNR/L 91°/NL DCLNR/L 72°30'/NL DCLNR/L 92°/NL DCLNR/L 90°/NL

P-type clamping system

PCBNR/L 75°/NL PCBNR/L 90°/NL PCBNR/L 80°/NL PCBNR/L 82°30'/NL PCBNR/L 75°/NL PCBNR/L 85°/NL PCBNR/L 75°/NL

PCBNR/L 75°/NL PCBNR/L 90°/NL PCBNR/L 80°/NL PCBNR/L 82°30'/NL PCBNR/L 75°/NL PCBNR/L 85°/NL PCBNR/L 75°/NL

M-type clamping system

MCBNR/L 75°/NL MCBNR/L 90°/NL MCBNR/L 80°/NL MCBNR/L 82°30'/NL MCBNR/L 75°/NL MCBNR/L 85°/NL MCBNR/L 75°/NL

MCBNR/L 75°/NL MCBNR/L 90°/NL MCBNR/L 80°/NL MCBNR/L 82°30'/NL MCBNR/L 75°/NL MCBNR/L 85°/NL MCBNR/L 75°/NL



DCLNR/L
Approach angle **95°**
Page **A136**

1 I want to order tool holders

- ◆ Approach angle,
- ◆ Clamping system

Corresponding tool holders of insert CN High clamping

PCBNR/L KAPR:75°

Types	Back								L	IC	S	D1	RE
	R	L	H	B	LF	HF	HP	LH					
PCBNR/L 2020K12	A	20	20	122	20	11	17	27	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020M12	A	20	20	100	20	22	27	27	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020S12	A	20	20	100	20	27	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020H12	A	20	20	100	20	22	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020P12	A	20	20	170	32	27	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020F12	A	20	20	100	20	27	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020B12	A	20	20	100	20	27	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020T12	A	20	20	100	20	27	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020V12	A	20	20	100	20	27	33	33	LE95+21	C10P	W95L	LA	3P4
PCBNR/L 2020W12	A	20	20	100	20	27	33	33	LE95+21	C10P	W95L	LA	3P4

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy finishing	For cast iron finishing
XF	PM	DR	HDR	TC	
DF	PM	DR	HDR	TC	
SF	DM	BR			
EF	DM	BR			
ADF	EG	SNR			
MF	BH	LA			
NB					



For finishing
XF
A52

2 Details of tool holder

- ◆ Tool holder type,
- ◆ Size
- ◆ Operation genre
- ◆ Applicable inserts

CN High clamping

Insert shape	Type	Dimensions (mm)				L	IC	S	D1	RE
		L	IC	S	D1					
ADF	CMC1020H-ADF	12.9	12.7	4.76	5.16	0.4				
	CMC1020M-ADF	12.9	12.7	4.76	5.16	0.4				
	CMC1020S-ADF	12.9	12.7	4.76	5.16	0.4				
PM	CMC1020H-PM	12.9	12.7	4.76	5.16	0.4				
	CMC1020M-PM	12.9	12.7	4.76	5.16	0.4				
	CMC1020S-PM	12.9	12.7	4.76	5.16	0.4				

Applicable tool

DCLNR/L KAPR:75° Page **A136**

PCBNR/L KAPR:75° Page **A142**

Dimensions (mm)

L	IC	S	D1	RE
12.9	12.7	4.76	5.16	0.4



4 Return to locate tool holder

3 Details of insert

- ◆ Shape, ◆ Size,
- ◆ Chipbreaker,
- ◆ Grade, ◆ Stock

Applicable tool holders

- ◆ Approach angle,
- ◆ Page



Applicable tool
DCLNR/L KAPR:75° Page **A136**
PCBNR/L KAPR:75° Page **A142**

Guide to select parting and grooving tools

Parting and grooving tools

QE□□R/L

QECDR/L



Page A256-257

A257

QF□□RR/LL

QF□DR/L



Page A262-265

A266-267

External parting, grooving and turning tools

Type	Tool	Material	Basic dimensions (mm)					Applicable inserts	Holder	Change	
			W	H	W1	W2	W3				
QEAD	1212R-L07	▲	12x12	12	12	12x12	15	7	ZD40R1025	SPFH04-M12	SPFH0
	1212R-L12	▲	12x12	12	12	12x12	18	12	ZD40R1025	SPFH04-M12	SPFH0
	1616R-L07	▲	16x16	16	16	16x16	15	7	ZD40R1025	SPFH04-M16	SPFH0
	1616R-L12	▲	16x16	16	16	16x16	18	12	ZD40R1025	SPFH04-M16	SPFH0
	2020R-L07	▲	20x20	20	20	20x20	15	7	ZD40R1025	SPFH04-M20	SPFH0
QEED	1212R-L10	▲	12x12	12	12	12x12	2	3	ZD40R1025	SPFH04-M12	SPFH0
	1212R-L15	▲	12x12	12	12	12x12	2	3	ZD40R1025	SPFH04-M12	SPFH0
	1616R-L10	▲	16x16	16	16	16x16	2	3	ZD40R1025	SPFH04-M16	SPFH0
	1616R-L15	▲	16x16	16	16	16x16	2	3	ZD40R1025	SPFH04-M16	SPFH0
	2020R-L10	▲	20x20	20	20	20x20	2	3	ZD40R1025	SPFH04-M20	SPFH0

Parting inserts

Type	Basic dimensions (mm)			Grade			
	Chip ¹	Chip ²	Chip ³	YBC11	YBC21	YB032	YB032
ZPAC092-MG	15	12	12	○	●	●	○
ZPAC092-MG	20	12	14	○	●	●	○
ZPAC092-MG	25	12	17	○	●	●	○
ZPAC092-MG	30	12	17	○	●	●	○
ZPAC092-MG	40	12	22	○	●	●	○
ZPAC092-MG	50	12	22	○	●	●	○
ZPAC092-MG	60	12	22	○	●	●	○
ZPAC092-MG	80	12	22	○	●	●	○
ZPAC092-MG	90	12	22	○	●	●	○
ZPAC092-MG	100	12	22	○	●	●	○
ZPAC092-MG	120	12	22	○	●	●	○
ZPAC092-MG	150	12	22	○	●	●	○
ZPAC092-MG	180	12	22	○	●	●	○
ZPAC092-MG	200	12	22	○	●	●	○

1 Selection of tool holder type

2 Tool holder type, Size and applicable inserts

3 Insert type, Chip-breaker, Size and grade

Little squirrel series

Little squirrel series QC series shallow grooving inserts

QC□□R/L	QC□□R/LO□□R
1.1-4.8	1.0-4.0
Page A257-252	A252

GC□□D-GM	GC□□D-GM	ZP□□D-MG	ZP□□S-MG	ZT□□D-MG
2.5,3,4,5,6	3,4,5,6	1.5,2,2.5,3,4,5,6	2.5,3,4,5,6	2.5,3,4,5,6
Page A248	A249	A241	A241	A242

Parting inserts

Type	Basic dimensions (mm)			Grade			
	Chip ¹	Chip ²	Chip ³	YBC11	YBC21	YB032	YB032
ZPAC092-MG	15	12	12	○	●	●	○
ZPAC092-MG	20	12	14	○	●	●	○
ZPAC092-MG	25	12	17	○	●	●	○
ZPAC092-MG	30	12	17	○	●	●	○
ZPAC092-MG	40	12	22	○	●	●	○
ZPAC092-MG	50	12	22	○	●	●	○
ZPAC092-MG	60	12	22	○	●	●	○
ZPAC092-MG	80	12	22	○	●	●	○
ZPAC092-MG	90	12	22	○	●	●	○
ZPAC092-MG	100	12	22	○	●	●	○
ZPAC092-MG	120	12	22	○	●	●	○
ZPAC092-MG	150	12	22	○	●	●	○
ZPAC092-MG	180	12	22	○	●	●	○
ZPAC092-MG	200	12	22	○	●	●	○

1 Selecting insert type

2 Insert type, Chip-breaker, Size and grade



Guide to select threading tools



External threading tools

Tool	Code	Basic dimensions	Maximum inserts	Maximum depth	Depth	Max. RPM	Feed
		R1 R2 L D					
ZSER	140016	40 116 16 100 30					
ZSER	300018	30 200 28 150 35					
ZSER	200044	20 204 28 180 33	Z40K02000	30/40/50/120°	MTC/20040	1600/15	0.15/0.1
ZSER	300018	30 200 28 150 33					
ZSER	200042	20 200 28 150 30	Z20K02000	30/40/50/120°	MTC/20040	1600/15	0.15/0.1
ZSER	200042	20 200 28 150 33					
ZSER	300018	30 200 28 150 33					
ZSER	400022	40 200 28 150 30	Z40K02000	30/40/50/120°	MTC/20040	1600/15	0.15/0.1
ZSER	400022	40 200 28 150 33					
ZSER	140016	40 116 16 100 30					
ZSER	300018	30 200 28 150 33					
ZSER	200044	20 204 28 180 33	Z40K02000	30/40/50/120°	MTC/20040	1600/15	0.15/0.1
ZSER	300018	30 200 28 150 33					
ZSER	200042	20 200 28 150 30	Z20K02000	30/40/50/120°	MTC/20040	1600/15	0.15/0.1
ZSER	200042	20 200 28 150 33					
ZSER	300018	30 200 28 150 33					
ZSER	400022	40 200 28 150 30	Z40K02000	30/40/50/120°	MTC/20040	1600/15	0.15/0.1
ZSER	400022	40 200 28 150 33					

ISO metric thread (with end)

ISO 965-1/960 DIN F3
GB/T 197-2003 Tolerance class: 6g/6h

Type	Basic dimensions	Maximum inserts	Maximum depth	Depth	Max. RPM	Feed
	R1 R2 L D					
Z1100.010	Z1100.010	0.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	10.00	0.00	0.00	33	0.0

1 Selection of tool holder type

2 Tool holder type, Size and applicable inserts

3 Insert type, Chip-breaker, Size and grade

Threading inserts

Right hand type thread ISO metric thread General pitch thread

	External thread	Internal thread	External thread	Internal thread
Feed	0.5-6	0.5-6	0.5-5	0.5-5
Type	A294	A295	A296	A296

ISO metric thread (with end)

ISO 965-1/960 DIN F3
GB/T 197-2003 Tolerance class: 6g/6h

Type	Basic dimensions	Maximum inserts	Maximum depth	Depth	Max. RPM	Feed
	R1 R2 L D					
Z1100.010	Z1100.010	0.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	0.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	1.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	2.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	3.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	4.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	5.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	6.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	7.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	8.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.00	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.25	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.50	0.00	0.00	33	0.0
Z1100.010	Z1100.010	9.75	0.00	0.00	33	0.0
Z1100.010	Z1100.010	10.00	0.00	0.00	33	0.0

1 Selecting insert category

2 Insert type, Chip-breaker, Size and grade



Cemented carbide and cermet inserts

For finishing

						
CNMG-XF	DNMG-XF	SNMG-XF	TNMG-XF	VNMG-XF	WNMG-XF	
Cutting edge length	12	11,15	12	16	16	06,08
Page	A52	A60	A68	A78	A85	A88

								
DNEG-NGF	VNEG-NGF	CNMG-DF	CNMG-SF	CNMG-EF	CNMG-ADF	CNEG-NF	DNMG-DF	
Cutting edge length	15	16	09,12	09,12	09,12	12	12	11,15
Page	A62	A86	A52	A52	A52	A53	A53	A60

								
DNMG-SF	DNMG-EF	DNMG-ADF	DNEG-NF	SNMG-DF	SNMG-EF	SNMG-ADF	SNMG-SF	
Cutting edge length	11,15	11,15	11,15	15	09,12	09,12,15	12	09,12,15
Page	A60	A61	A61	A61	A68	A68	A69	A69

								
TNMG-DF	TNMG-SF	TNMG-EF	TNMG-ES	TNMG-ADF	VNMG-DF	VNMG-EF	VNMG-ADF	
Cutting edge length	16,22	11,16,22	11,16,22	16	16	16	16	16
Page	A78	A78	A79	A79	A79	A85	A85	A85

								
VNEG-NF	VNMG-SF	WNMG-DF	WNMG-SF	WNMG-EF	WNMG-ES	WNMG-ADF	WNEG-NF	
Cutting edge length	16	16	06,08	06,08	06,08	08	06,08	08
Page	A85	A86	A88	A88	A89	A89	A89	A89

For semi-finishing

						
CNMG-XM	DNMG-XM	SNMG-XM	TNMG-XM	VNMG-XM	WNMG-XM	
Cutting edge length	12,16,19	11,15	12,15,19	16,22	16	06,08
Page	A54	A63	A70	A80	A86	A90

								
CNMG-PM	CNMG-DM	CNMG-EM	CNMG-EG	CNMG-EH	CNMG-NM	DNMG-PM	DNMG-DM	
Cutting edge length	09,12,16,19	09,12,16,19	12,16	12	12	12	11,15	11,15
Page	A53	A54	A55	A55	A55	A55	A62	A63

General turning

Turning inserts overview

Negative inserts

DNMG-EM	DNMG-EG	DNMG-NM	SNMG-PM	SNMG-DM	SNMG-EM	SNMG-EG	SNMG-NM
Cutting edge length	11,15	11,15	15	09,12,15,19	09,12,15,19	12,15	12
Page	A64	A64	A64	A70	A71	A71	A72

TNMG-PM	TNMG-DM	TNMG-EM	TNMG-EG	TNMG-EH	VNMG-PM	VNMG-DM	VNMG-EM
Cutting edge length	11,16,22	11,16,22	16,22	16	16	16	16
Page	A80	A81	A81	A81	A82	A86	A86

VNMG-EG	VNMG-NM	WNMG-PM	WNMG-DM	WNMG-EM	WNMG-EG	WNMG-EH	WNMG-NM
Cutting edge length	16	16	06,08	06,08	06,08	08	08
Page	A87	A87	A90	A91	A91	A91	A92

CNMG-SNR	DNMG-SNR	SNMG-SNR	TNMG-SNR	VNMG-SNR	WNMG-SNR
Cutting edge length	12,16,19	15	12	16	16
Page	A57	A66	A75	A83	A87

CNMM-LR	DNMM-LR	SNMM-LR	TNMM-LR	CNMG-DR	CNMM-DR	CNMG-ER	CNMM-ER
Cutting edge length	12,16,19,25	15	12,15,19,25	16,22	12,16,19	12,16,19,25	12,16,19
Page	A56	A65	A72	A82	A56	A57	A57

DNMG-DR	DNMM-DR	DNMG-ER	DNMM-ER	SNMG-DR	SNMM-DR	SNMG-ER	SNMM-ER
Cutting edge length	15	15	15	15	12,15,19	12,15,19,25	12,15,19
Page	A65	A65	A65	A66	A73	A74	A74

TNMG-DR	TNMM-DR	TNMG-ER	WNMG-DR
Cutting edge length	16,22,27	16,22,27	16,22
Page	A82	A83	A83



Negative inserts

For heavy machining



CNMM-HPR

SNMM-HPR

CNMM-HDR

DNMM-HDR

SNMM-HDR

TNMM-HDR

Cutting edge length

19,25

19,25

12,16,19

15

12,15,19,25

16,22,27

Page

A58

A76

A58

A66

A75

A84



LNUX-RF

LNUX-RH

Cutting edge length

19,30

19,30

Page

A94

A94

All round



CNMG-TC

CNMG

DNMG-TC

SNMG-TC

SNMG

TNMG-TC

VNMG-TC

Cutting edge length

04,08,12,16

12,16,19

15

12

12,15,19,25

16,22

16

Page

A58

A59

A66

A76

A76

A84

A87



WNMG-TC

Without chipbreaker



CNMA



DNMA



SNMA



TNMA



WNMA

Cutting edge length

08

12,16,19

11,15

09,12,15,19

16,22,27

06,08

Page

A93

A59

A67

A77

A84

A93

For extra finishing



CCGT-SF



DCGT-SF



TCGT-SF



VCGT-SF



VBGT-SF



CPGT-SF



DPGT-SF

Cutting edge length

06,09

07,11

06,09,11

11

11

06,09

07,11

Page

A95

A100

A109

A114

A117

A120

A120



TBGH-L



TPGH-L



TPGT-SF

Cutting edge length

06

09,11

09,11

Page

A121

A121

A122

Positive inserts

For finishing



CCMT-XF



DCMT-XF



SCMT-XF



TCMT-XF



VBMT-XF



VCMT-XF

Cutting edge length

06,09

07,11

09

09,11,16

11,16

11,16

Page

A95

A100

A106

A109

A117

A114

VCGT-NGF	VBET-NGF	CCMT-HF	CCMT-EF	CCMT-AHF	DCMT-HF	DCMT-EF	DCMT-AHF
Cutting edge length 16	16	06,09,12	06,09,12	06,09,12	07,11	07,11	07,11
Page A114	A118	A95	A96	A96	A100	A101	A101

SCMT-HF	SCMT-EF	SCMT-AHF	TCMT-HF	TCMT-EF	TCMT-AHF	VCGT-NF	VCMT-AHF
Cutting edge length 09	09	09	06,09,11,16	09,11,16	11,16	16	16
Page A106	A106	A106	A109	A109	A111	A114	A114

VBMT-AHF	VBMT-HF	VBMT-EF	VBET-NF
Cutting edge length 16	11	11,16	16
Page A118	A117	A117	A118

For semi-finishing

CCMT-XM	DCMT-XM	SCMT-XM	TCMT-XM	VBMT-XM	VCMT-XM
Cutting edge length 09,12	07,11	09,12	16	16	16
Page A96	A101	A107	A111	A118	A115

CCMT-HM	CCMT-EM	CCMT-EG	DCMT-HM	DCMT-EM	SCMT-HM	SCMT-EM	TCMT-HM
Cutting edge length 06,09,12	06,09,12	06,09	07,11	07,11	09,12	09,12	09,11,16
Page A97	A97	A97	A102	A102	A107	A107	A112

TCMT-EM	TCMT-EG	VBMT-HM	VBMT-EM
Cutting edge length 09,11,16	11	16	11
Page A111	A111	A119	A118

For roughing

VBMT-SNR	CCMT-HR	DCMT-HR	SCMT-HR	TCMT-HR	VBMT-HR
Cutting edge length 16	06,09,12	11	09,12	09,11,16,22	16
Page A119	A98	A102	A108	A112	A119



Positive inserts

For Al machining



CCGX-LC

DCGX-LC

SCGX-LC

TCGX-LC

VCGX-LC

Cutting edge length

06,09,12

07,11

09,12

09,11,16

11,16,22

Page

A99

A103

A108

A113

A116



CCGX-LH

DCGX-LH

RCGX-LH

SCGX-LH

TCGX-LH

VCGX-LH

Cutting edge length

06,09,12

07,11

08

09,12

09,11,16

11,16,22

Page

A99

A103

A104

A108

A113

A116

All round



CCMT-TC

RCM(G)T

RCMX

Cutting edge length

06,09,12

08,10,12,16

08,10,12,16,20,25,32

Page

A98

A104

A105

Parting and grooving inserts

General turning

Turning inserts overview

Little squirrel series

QC series shallow grooving inserts



QC□□R/L

QC□□R/L□□□R

Cutting edge width

1.1~4.8

1.0~4.0

Page

A251-252

A252



G□MD-GM

G□MD-GM

ZP□D-MG

ZP□S-MG

ZT□D-MG

ZT□D-MM

ZT□S-MG

Cutting edge width

2.5,3,4,5,6

3,4,5,6

1.5,2,2.5,3,4,5,6

2.5,3,4,5,6

2.5,3,4,5,6

1.5,2,2.5,3,4,5,6,8

5,6

Page

A248

A249

A241

A241

A242

A242

A242



ZT□D-EG

ZT□D-EG

ZIMF-NM

ZIMF-SM

ZR□D-MG

ZR□D-NM

ZR□D-EG

Cutting edge width

1-2.4 (tailor-made)

2.4-6.5 (tailor-made)

3,4,5,6

3,4,5,6

2.5,3,4,5,6

3,4,5,6

3,4,5,6

Page

A243

A243

A244

A244

A245

A245

A245



ZIGQ-NM

ZIGQ-NF

ZR□D-LH

ZILD-LC

Cutting edge width

3,4,5,6

3,4,5,6

6,8

8

Page

A246

A246

A247

A247

Supplemental series



ZQMX-1E

Cutting edge width

3, 1.25, 4, 1.25, 5, 1.25, 6, 4, 7, 0.5

Page

A253

Threading inserts

Right hand type shown	ISO metric thread		General pitch thread		Whitworth thread	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	0.5~6	0.5~6	0.5~5	0.5~5	8~19	8~19
Page	A294	A295	A296	A296	A297	A297

Right hand type shown	Unified thread		British taper pipe thread		American taper pipe thread	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	8~24	8~24	11~28	11~28	8~27	8~27
Page	A298	A298	A299	A299	A300	A300

Right hand type shown	ISO metric thread		General pitch thread		Whitworth thread	
Threading inserts with PP chipbreaker						
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	1.0~3.0	1.0~3.0	0.5~5.0(5~48)	0.5~5.0(5~48)	11~19	11~19
Page	A301	A301	A302	A302	A303	A303

Right hand type shown	Unified thread		British taper pipe thread		American taper pipe thread	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	12~16	12~16	11~19	11~19	11~19	11.5~18
Page	A304	A304	A305	A305	A306	A306

Right hand type shown	ISO metric thread		General pitch thread		Whitworth thread	
Thick threading insert						
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	0.5~6	0.5~6	0.5~5	0.5~5	8~16	8~16
Page	A311	A312	A313	A313	A314	A314

Right hand type shown	Unified thread		British taper pipe thread		American taper pipe thread	
	External thread	Internal thread	External thread	Internal thread	External thread	Internal thread
Pitch/ Number of pitch	8~24	8~24	11~28	11~28	8~27	8~27
Page	A315	A315	A316	A316	A317	A317

Tool holders for external turning

D-type clamping system

DCLNR/L	DDJNR/L	DSBNR/L	DTGNR/L	DVVNN	DVJNR/L	DWLNR/L
						
Approach angle 95°	93°	75°	91°	72°30'	93°	95°
Page A136	A137	A138	A139	A140	A140	A141

P-type clamping system

PCBNR/L	PCLNR/L	PDJNR/L	PDPNN	PSBNR/L	PSDNN	PSKNR/L
						
Approach angle 75°	95°	93°	62°30'	75°	45°	75°
Page A142	A143	A144	A145	A146	A147	A148

PSSNR/L	PTFNR/L	PTTNR/L	PTGNR/L	PWLNR/L
				
Approach angle 45°	91°	60°	90°	95°
Page A149	A150	A151	A152	A153

M-type clamping system

MCBNR/L	MCLNR/L	MDJNR/L	MDPNN	MSBNR/L	MSRNR/L	MSKNR/L
						
Approach angle 75°	95°	93°	62°30'	75°	45°	75°
Page A154	A155	A156	A157	A158	A159	A160

MSDNN	MTGNR/L	MTJNR/L	MTJNR/L-Z	MTFNR/L	MVVNN	MVJNR/L
						
Approach angle 45°	90°	93°	93°	91°	72°30'	93°
Page A161	A162	A163	A164	A165	A166	A167

MWLNR/L

Approach angle 95°
Page A168



S-type clamping system

SCACR/L	SCLCR/L	SDACR/L	SDJCR/L	SDNCN	SVJBR/L	SVABR/L
Approach angle 90°	95°	90°	93°	62°30'	93°	90°
Page A169	A170	A171	A172	A173	A174	A175
SVVBN	SVVCN	SVJCR/L	SSBCR/L	SSDCN	SSKCR/L	SSSCR/L
Approach angle 72°30'	72°30'	93°	75°	45°	75°	45°
Page A176	A177	A178	A179	A180	A181	A182
STACR/L	STFCR/L	STGCR/L	SRDCN	SRGCR/L		
Approach angle 90°	91°	91°				
Page A183	A184	A185	A186	A187		



Turning tool holders for internal machining

P-type clamping system

					
Approach angle 95°	62°30'	93°	75°	90°	95°
Page A194	A195	A196	A197	A198	A199

S-type clamping system

						
Approach angle 95°	107°30'	93°	93°	75°	91°	107°30'
Page A200	A201	A202	A203	A204	A205	A206

						
Approach angle 93°	107°30'	93°	95°	107°30'	93°	93°
Page A207	A208	A209	A210	A211	A212	A213

	
Approach angle 90°	95°
Page A214	A215

Damping tool holders

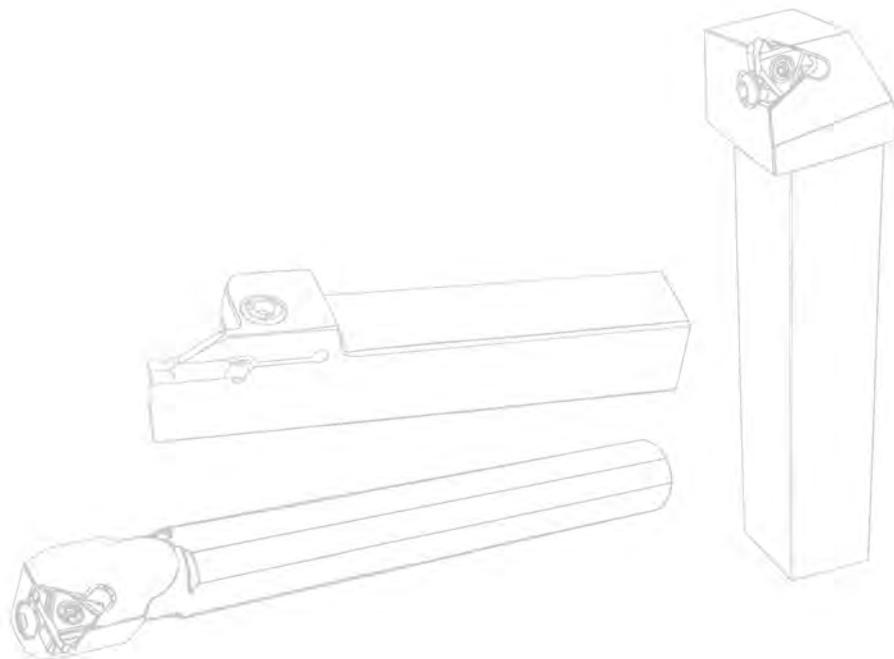
					
Approach angle 95°	107°30'	93°	93°	107°30'	93°
Page A217	A218	A219	A220	A221	A221



Parting and grooving tools



Threading tools



General turning inserts overview

Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert
For finishing	SF	M			<p>Recommended chipbreaker for finishing of P-type mild steel</p> <p>Double-sided chipbreaker with M-level tolerance has outstanding performance in finishing, achieving good surface quality.</p>
	XF	M			<p>Recommended chipbreaker for finishing of P-type materials</p> <p>The curved edge angle ensures the strength of the cutting edge, effectively reduces the cutting resistance, and the special chipbreaker design can ensure the chip control performance in the finishing range.</p>
	DF	M			<p>Recommended chipbreaker for finishing of P-type materials</p> <p>Double-sided chipbreaker with M-level tolerance has sharp edges, which can effectively cut off stainless steel and avoid adhering and surface hardening, achieving high surface quality.</p>
	EF	M			<p>Recommended chipbreaker for finishing of M-type materials</p> <p>Double-sided chipbreaker with M-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality.</p>
	ES	M			<p>Brand new recommended chipbreaker for M-type material finishing</p> <p>Sharp large rake angle design reduces cutting resistance with a good machining surface quality. The unique chipbreaker structure realizes good chip control and reduces cutting heat.</p>
	ADF	G			<p>Recommended chipbreaker for M-type material universal finishing</p> <p>G-level tolerance. High dimensional and repeatable positioning accuracy can be obtained. Special design of the rake face structure ensures the strength of the insert meanwhile greatly reduces the cutting resistance. Advanced technology for edge treatment process and coating post-treatment ensure machining parts with excellent surface finish.</p>
	NF	E			<p>Recommended chipbreaker for finishing of S-type materials</p> <p>Double-sided chipbreaker with E-level tolerance can prevent wear and hardening to achieve high machining precision and good surface quality.</p>

Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert
For finishing	NGF	E			Recommended chipbreaker for finishing of S-materials E-level double side chipbreaker with excellent sharp type edge. High positioning accuracy, light cutting force, which is recommended chip breaker for S-type material general finishing.
	XM				Recommended chipbreaker for semi-finishing of P-type materials Special cutting edge structure, taking into account cutting sharpness and insert strength, the newly designed chipbreaker, to ensure the chip control performance in the semi-finishing range.
For semi-finishing					
	DM	M			Recommended chipbreaker for semi-finishing of P-type materials Double-sided chipbreaker with M-level tolerance produces small cutting forces and has large chip breaking range, which ensures good performance for machining highly adhesive alloy steel.
	PM	M			Recommended chipbreaker for semi-finishing of P-type materials Double-sided chipbreaker with M-level tolerance has higher strength of cutting edge than chipbreaker DM. It is suitable for semi-finishing under unstable working conditions as well as machining cast iron with small cutting forces.
	EH	M			Brand new recommended chipbreaker for M-type material semi-finishing M-level tolerance. Double positive rake angle take into account the sharpness and strength of the tool tip. Suitable for efficient machining of stainless steel in intermittent working conditions.
	NM	M			Recommended chipbreaker for semi-finishing of S-type materials Double-sided chipbreaker with M-level tolerance keeps high precision after inserts are turned, with good capability to prevent wear and hardening to achieve higher machining efficiency than chipbreaker NF.
EM	M			Recommended chipbreaker for semi-finishing of M-type materials Double-sided chipbreaker with M-level tolerance can solve the processing problems such as chip breaking and adhering of stainless steel, achieving higher machining efficiency than chipbreaker EF.	

General turning

General turning inserts overview



General turning inserts overview

Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert
For semi-finishing	EG	M			Recommended chipbreaker for M-type material universal machining M-level tolerance. Reasonable chipbreaker design realizes good chip control. Sharp rake angle effectively suppresses burr generation.
					From semi-finishing to roughing of P-type, M-type, K-type materials Double-sided chipbreaker with M-level tolerance has good cutting edge strength and wide application.
Light-load roughing	DR Double-side	M			Recommended chipbreaker for light roughing of P-type and K-type materials Double-sided chipbreaker with M-level tolerance is the first choice for light roughing, can achieve high evacuation rate and efficiency of cutting edge.
					Recommended chipbreaker for light-load roughing of P-type materials Single-sided general chipbreaker with M-level tolerance, has wide chip breaking range and sharp cutting edge is designed with inclined angle, which enables it to cut lightly and easily and control the chip flow direction. Chip-leaded-stages can reduce the contact area with chips, so that heat can easily be dissipated.
For roughing	ER Single/Double side	M			Recommended chipbreaker for roughing of M-type materials Single / double-sided chipbreaker with M-level tolerance has good capacity of impact-resistance. It is designed to achieve balance between security and sharpness of the cutting edge, and it can achieve high efficiency by preventing the problems of adhering and high cutting heat when roughing stainless steel.
				Recommended chipbreaker for roughing of P-type materials Single-sided chipbreaker with M-level tolerance has high security of cutting edge, which can achieve high feed rate and low cutting forces at great cutting depth and high feed rate.	

General turning

General turning inserts overview

Negative inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert	
For roughing	SNR	M			<p>Recommended chipbreaker for S-type material high efficiency roughing</p> <p>M-level double-sided chipbreaker perfectly combines sharpness and strength of the cutting edge, with small cutting resistance and high edge strength can effectively reduce groove wear. SNR is recommended chipbreaker for high depth roughing of S- materials.</p>	
Heavy-load machining	HDR Single-side	M			<p>Recommended chipbreaker for heavy load machining of P-type materials</p> <p>M level single-sided chipbreaker with strengthen cutting edges, high safety and excellent plastic deformation resistance under high metal removal rate.</p>	
	HPR Single-side					
	<p>Recommended chipbreaker for heavy-load machining of P-type materials</p> <p>Single-sided chipbreaker with M-level tolerance, strong cutting edge. Multi-stages chipbreaker ensures the flowing of chip and heat dissipation of insert. It is suitable for machining under unstable and relatively bad working condition, especially for external roughing of workpiece with a rough oxidized surfaces.</p>					
Cast iron machining	TC	M			<p>Universal chipbreaker for K-type material machining</p> <p>M-level tolerance. High edge strength, excellent impact resistance and stable performance, which is suitable for cast iron material finishing to rough machining occasions.</p>	
	Without chipbreaker					
<p>For cast iron machining</p> <p>Double-sided chipbreaker with M-level tolerance has high cutting edge strength. It can overcome inferior factors such as interruption and vibration, etc. when machining cast iron.</p>						

General turning inserts overview

Positive inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert
For extra finishing	R/L	G			Recommended chipbreaker for precise boring inserts G-level tolerance, sharp cutting edge and small nose radius, it can effectively reduce the vibration in machining and is suitable for boring and external turning.
	SF	G			First choice for finishing with high requirements on chipbreaker G-level tolerance, it is the first choice for precise finishing due to its excellent performance on chip breaking.
	XF	M			Recommended chipbreaker for finishing of P-type materials The curved edge angle ensures the strength of the cutting edge, effectively reduces the cutting resistance, and the special chip breaking groove design can ensure the chip control performance in the finishing range.
For finishing	HF	M			Chipbreaker for finishing with wide application M-level tolerance, it is suitable for internal and external finishing of various materials such as steel and cast iron.
	EF	M			Recommended chipbreaker for finishing of M-type materials M-level tolerance, it has sharp cutting edges and is suitable for cutting adhesive materials such as stainless steel, soft steel, etc.
	AHF	G			Recommended chipbreaker for M-type material universal finishing G-level tolerance. High dimensional and repetitive positioning accuracy can be obtained. Unique vibration-damping chipbreaker design realizes good surface quality even when machining long and thin shaft parts.
	NF	E G			Recommended chipbreaker for finishing S-type materials E and G-level tolerance and sharp cutting edges, it is suitable for internal and external finishing of high-temperature alloy materials.

Positive inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert						
For finishing	NGF	E G			Recommended chipbreaker for S-type material general finishing E, G-level tolerance, for inner hole finishing of S-type materials.						
				For semi-finishing	XM	M			Recommended chipbreaker for semi-finishing of P-type materials Special cutting edge structure, taking into account cutting sharpness and insert strength, the newly designed chipbreaker, to ensure the chip control performance in the semi-finishing range.		
								HM	M		
						EM	M				Recommended chipbreaker for semi-finishing of M-Type materials M-level tolerance, it has higher hardness of cutting edge than EF and can achieve higher efficiency.
						EG		M			Recommended chipbreaker for M-type material universal machining M-level tolerance. Reasonable chipbreaker design realizes good chip control. Sharp rake angle effectively suppresses burr generation.
						All round	M				Recommended chipbreaker for semi-finishing of M-type materials M-level tolerance, it is suitable for profile machining materials like steel, cast iron, etc.
						For roughing		HR	M		

General turning inserts overview

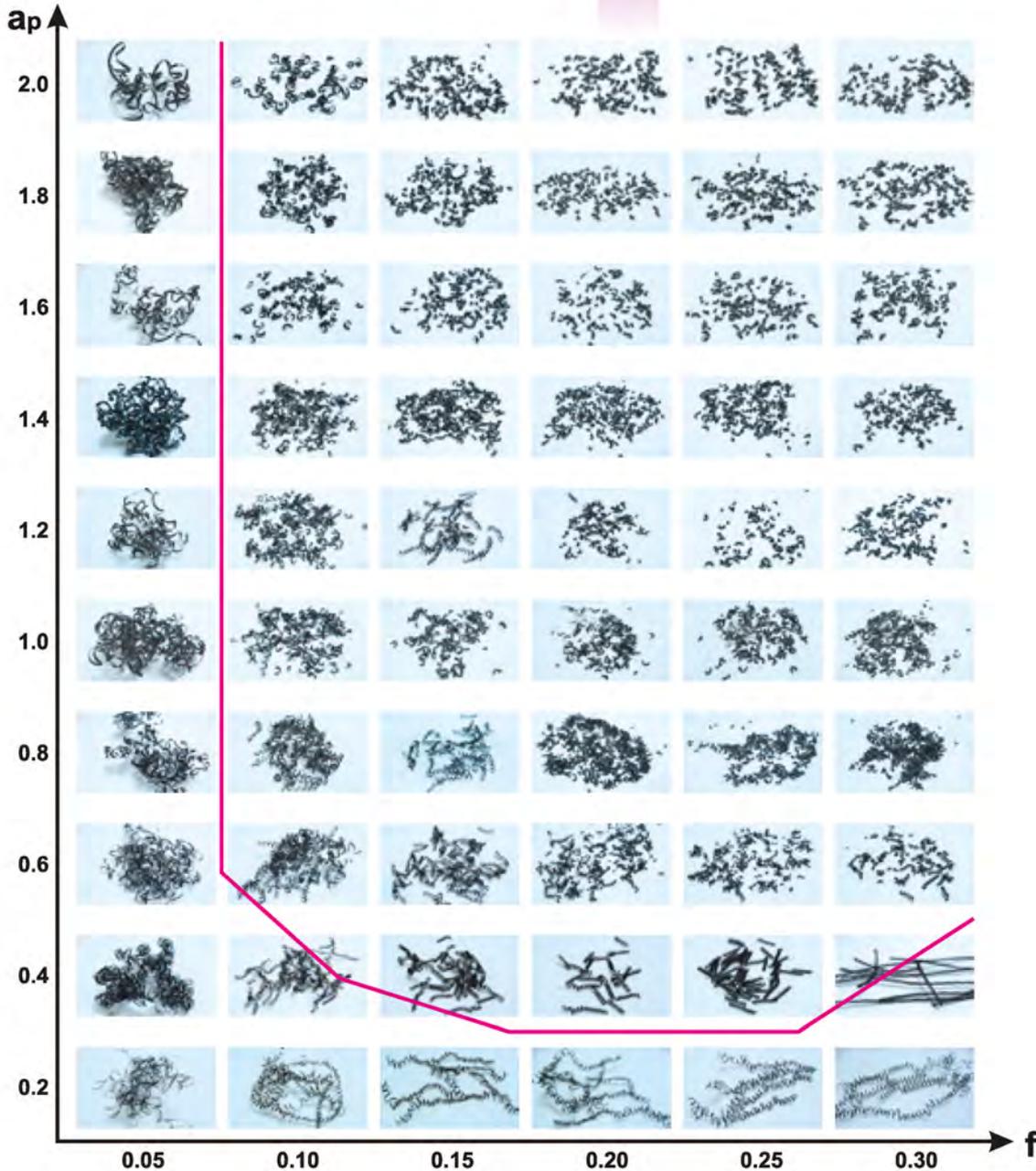
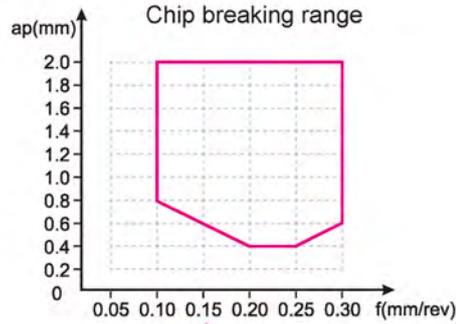
Positive inserts with hole

Application	Chipbreaker	Precision	Recommended cutting parameters	Chipbreaker profile	Feature / Shape of insert
For roughing	TC	M			<p>Universal chipbreaker for K-type material machining M-level tolerance. High edge strength, excellent impact resistance and stable performance, which is suitable for cast iron material finishing to rough machining occasions.</p>
	Special chipbreaker	M			<p>Recommended chipbreaker for heavy machining of P-type materials Single-sided with M-level tolerance, it has good cutting edge strength with high security. It is the first choice for profile roughing.</p>
	SNR	M			<p>Recommended chipbreaker for S-type material high efficiency roughing M-level tolerance, for inner hole roughing of S materials.</p>
For Al machining	LC	G			<p>Chipbreaker for machining of Al alloy G-level tolerance, large rake angle and clearance angle make the cutting edge sharper, ensuring easy and fast cutting while remaining effective chip breaking.</p>
	LH	G			<p>Special chipbreaker for machining of Al alloy G-level tolerance, large rake angle and polishing treatment on surface, it can effectively prevent built-up edge and achieve high workpiece surface quality while maintaining long life.</p>

Cutting test for chip breaking range of general turning inserts

Case

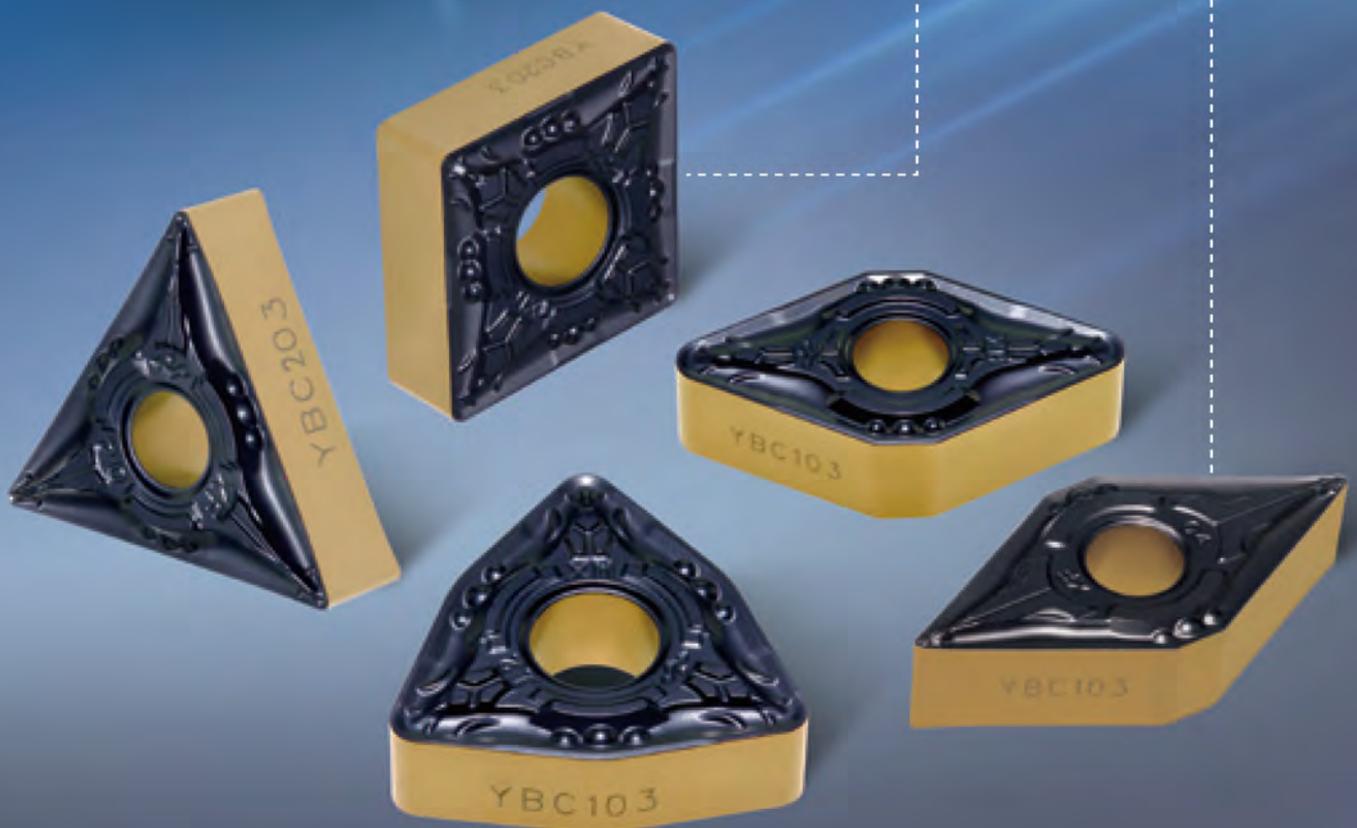
Insert: CNMG120408-DF
 Toolholder: PCLNL2525M12
 Workpiece material: 45# steel
 Cutting speed: 200m/min



**New turning
grade for P-type
materials**

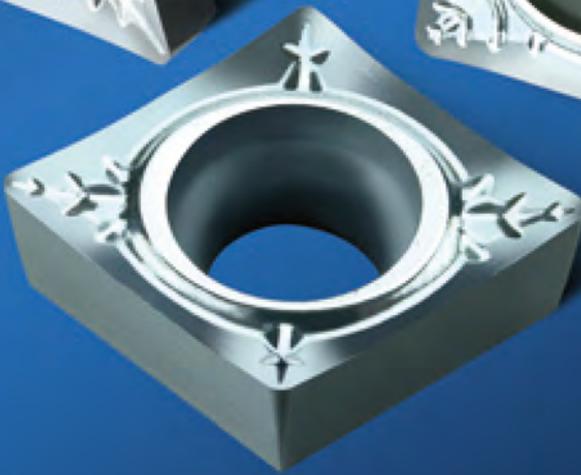
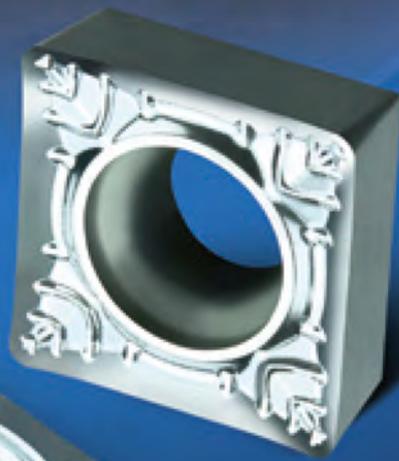
YBC103

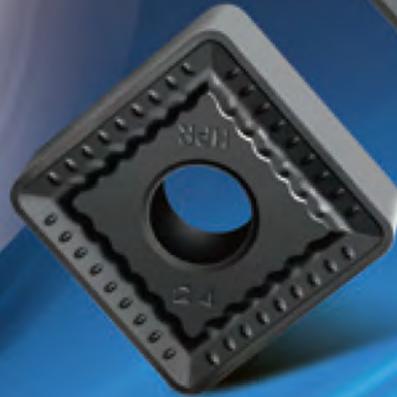
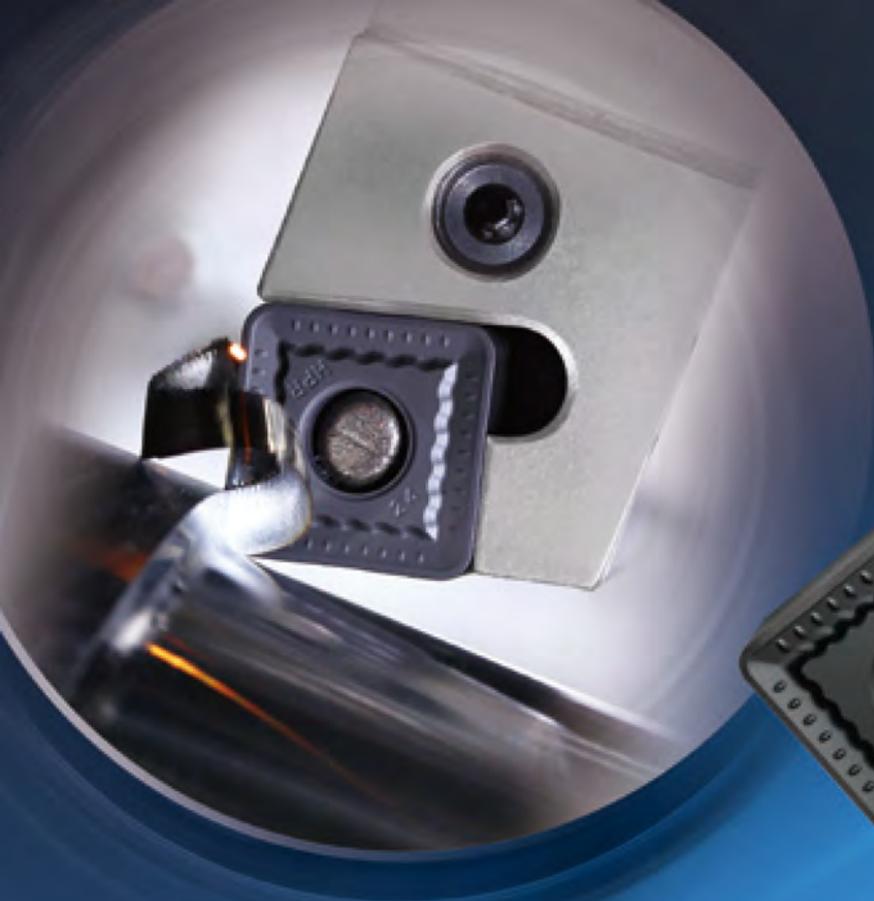
YBC203





-LC *Chipbreaker for
Al machining*

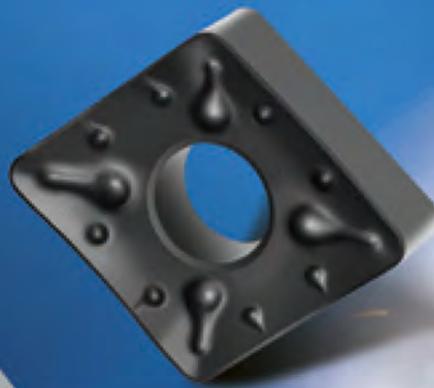




-HPR

**New generation of
roughing chipbreaker**

-LR





YBM215

Outstanding wear resistance, extends the tool life
achieves high efficient processing

**Grade for stainless
steel machining**



YBM153

Best choice for cutting stainless steel
with high speed under good working condition



ISO	General turning						Threading	Parting and grooving			
	Code	Coating		Cermet	Coated cermet	Ceramic	Cemented carbide	Coating			
		CVD	PVD					PVD	CVD	PVD	Cemented carbide
P Steel	01										
	10	YBC152 YBC103									
	20	YBC252 YBC203	YBG102		YNG151			YBG202 YBG203		YBG205	
	30		YBG202							YBG302	
	40	YBC352									
M Stainless steel	01										
	10	YBM153 YBM251									
	20	YBM253	YBG202 YBM215 YBG205		YNG151			YBG202 YBG203		YBG205 YBG302	
	30										
	40										
K Cast iron	01										
	10	YBD052 YBD102 YBD152									
	20			YNG151		CN3100	YD201	YBG202 YBG203		YBG205 YBG302	YD201
	30										
N Non ferrous metal	01										
	10										
	20						YD101	YBG202 YBG203			YD101
	30										
S Heat resistant alloy & Ti alloy	01										
	10										
	20		YBS103 YBG102 YBG105 YBG212 YBG202			CN3100	YD101	YBG202 YBG203		YBS103 YBG102 YBG105 YBG302 YBG212 YBG202	YD101
	30										
H Super hard material	01										
	10										
	20					CN3100		YBG202 YBG203			
	30										

General turning

Recommended grade overview for turning inserts

How to select general turning inserts

How to select general turning inserts

Turning inserts list

- Turning inserts listed according to shape
- Sequence of listed inserts:
 - ▶ Negative inserts (with hole – without hole)
 - ▶ Positive inserts (with hole – without hole)
- Sequence of listed chipbreaker
 - For finishing – For semi-finishing – For roughing – For heavy cutting – Without chipbreaker – Through chipbreaker

Selecting grade according to workpiece material and working condition

Prior to select grade for insert according to working condition that is suitable for workpiece material

😊 Good working condition: machine works well and stably. There are high requirements for dimensional precision of components and quality surface.

😐 Normal working condition: machine works normally. There are certain requirements for dimensional precision of components and surface quality.

😞 Bad working condition: machine works with bad stability. There are high requirements for metal evacuation rate.

Main category of products

Positive or negative inserts

Shape and dimensions
 L: Cutting edge length
 IC: Diameter of inscribed circle
 S: Thickness
 D1: Hole diameter
 RE: Nose radius

Type

Grade

Size

Stock

Illustration of stock

Applicable tool

Reference page of tool holders

Application of inserts

Shape

Insert chipbreaker
Chipbreaker code

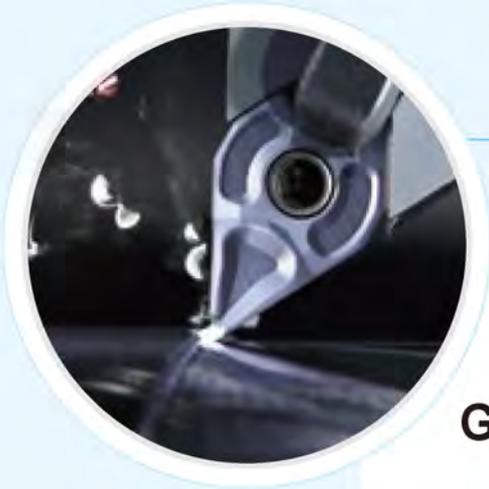
Recommended cutting parameters
 Chipbreaker selection reference
 Grade selection reference
 Insert code key

Inserts shape	Type	Dimensions (mm)					Coated cemented carbide																				
		L	IC	S	D1	RE	YG100	YG200	YG300	YG400	YG500	YG600	YG700	YG800	YG900	YG1000	YG1100	YG1200	YG1300	YG1400	YG1500	YG1600	YG1700	YG1800	YG1900	YG2000	
ADF For finishing	CNMG120404-ADF	12.9	12.7	4.78	5.18	0.4	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	CNMG120408-ADF	12.9	12.7	4.78	5.18	0.8																					
	CNMG120412-ADF	12.9	12.7	4.78	5.18	1.2																					
NF For finishing	CNEG120404-NF	12.9	12.7	4.78	5.18	0.4	★	★																			
	CNEG120408-NF	12.9	12.7	4.78	5.18	0.8																					
	CNEG120412-NF	12.9	12.7	4.78	5.18	1.2																					
PM For semi-finishing	CNMG090304-PM	9.7	9.525	3.18	3.81	0.4	★	★																			
	CNMG090308-PM	9.7	9.525	3.18	3.81	0.8																					
	CNMG120404-PM	12.9	12.7	4.78	5.18	0.4	★	★																			
	CNMG120408-PM	12.9	12.7	4.78	5.18	0.8	★	★																			
	CNMG120412-PM	12.9	12.7	4.78	5.18	1.2	★	★																			
	CNMG120416-PM	12.9	12.7	4.78	5.18	1.6	★	★																			
	CNMG160608-PM	16.1	15.875	6.35	6.35	0.8																					
	CNMG160612-PM	16.1	15.875	6.35	6.35	1.2																					
	CNMG160616-PM	16.1	15.875	6.35	6.35	1.6																					
CNMG190608-PM	19.3	19.05	6.35	7.94	0.8	★	★																				
CNMG190612-PM	19.3	19.05	6.35	7.94	1.2	★	★																				
CNMG190616-PM	19.3	19.05	6.35	7.94	1.6	★	★																				

★ Recommended grade (always stock available) ● Available grade (always stock available) ☐ Make-to-order

DCBNRL KAPR 95° A136
 PCBNRL KAPR 75° A142
 PCLNRL KAPR 95° A143
 MCBNRL KAPR 75° A154
 MCLNRL KAPR 95° A155
 PCLNRL KAPR 95° A194

Insert code key A48-A49 Grade selected reference A21-A30-A45 Chipbreaker selected reference A24-A37 Recommended cutting parameters A22-A24



TURNING



General turning inserts

General turning inserts overview ● A24-A30

Application instruction for general turning inserts ● A31-A47

General turning inserts ● A48-A122

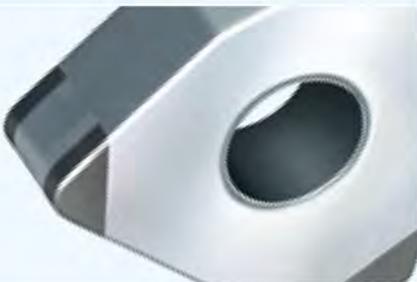
General turning inserts code key ● A48-A49

Metric-inch comparison table for general turning inserts ● A50-A51

Cemented carbide and cermet inserts ● A52-A122

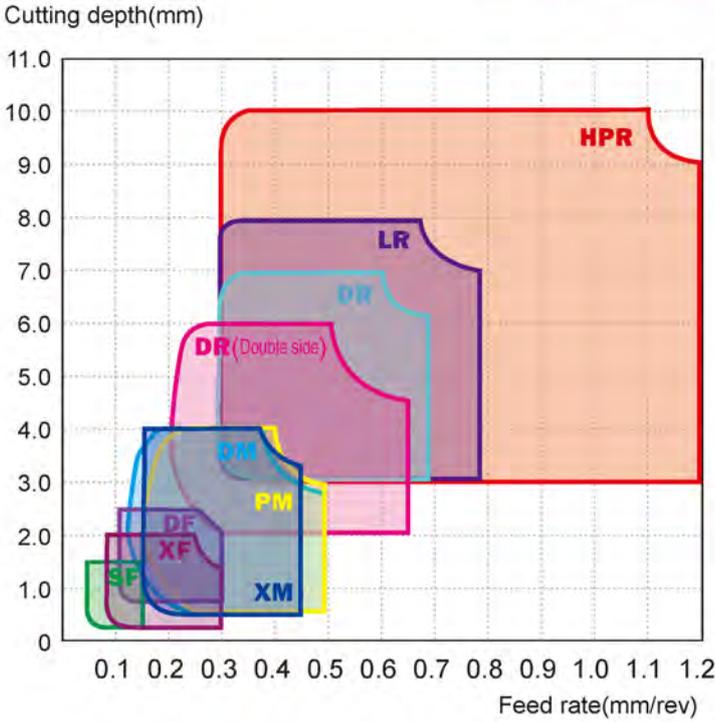
Negative inserts ● A52-A94

Positive inserts ● A95-A122

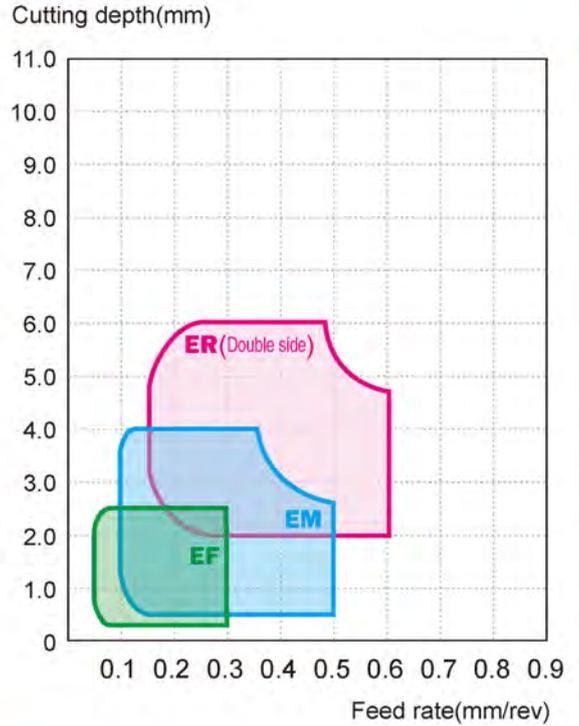


Chip breaking range reference for general turning inserts

Negative inserts

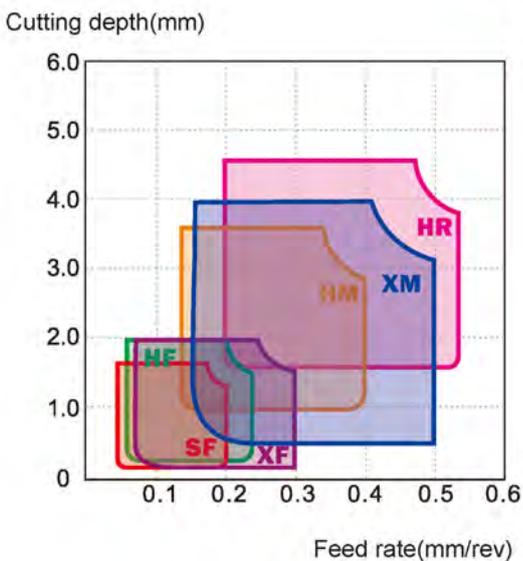


▶ Workpiece material: 45# steel

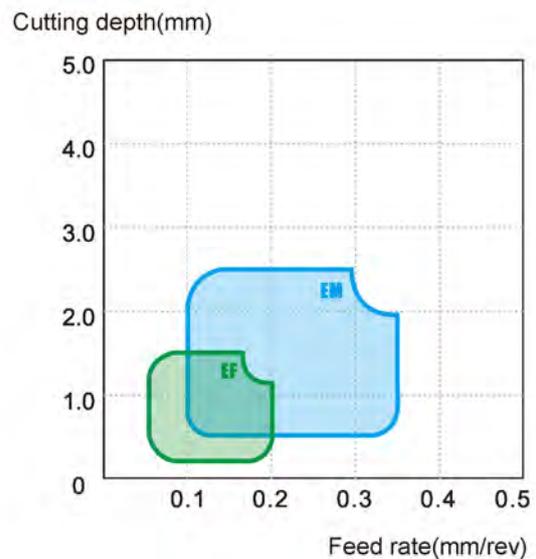


▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

Positive inserts



▶ Workpiece material: 45# steel



▶ Workpiece material: stainless steel (1Cr18Ni9Ti)

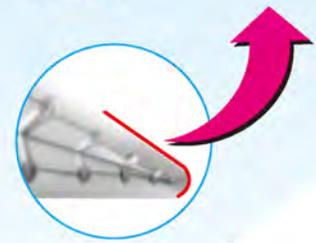
-LC chipbreaker for aluminum

- LC inserts are designed with a special chipbreaker. Large rake angle and clearance angle make the cutting edge sharper, ensuring easier cutting while remaining effective chip breaking.
- Achieved the mirror rake face after special treatment. Reduced the friction resistance, and stick free. Accordingly, make the chip removal fluently and improve the surface quality and tool life.
- The G-class tolerance of insert, higher Repeated Position Accuracy, at the same time, it can effectively avoid the vibration during the machining process.

Optimized inclined angel makes controlling the chipping flow direction valid.

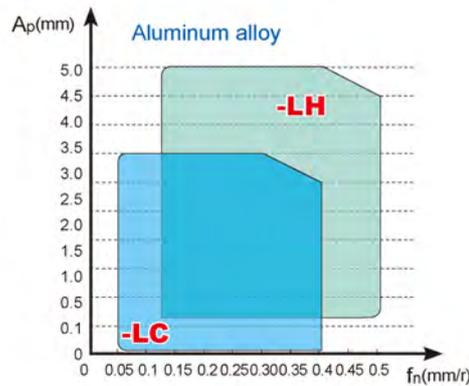
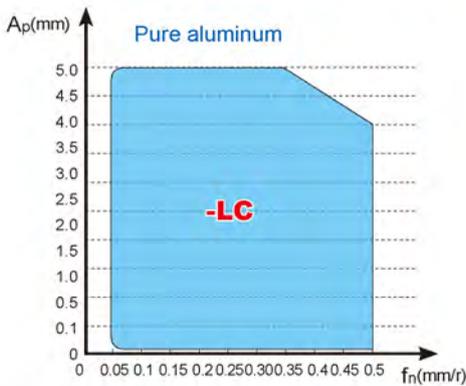


Smooth connection of insert nose and cutting edge makes rake face smoother.

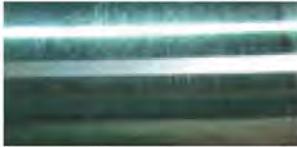


-LC and -LH chipbreaker characteristics and machining range

-LC chipbreaker can be used in machining of pure Al, while -LH chipbreaker can not.
-LC chipbreaker expand the chip breaking range of Al alloy machining.



Workpiece material: Pure aluminum

Cutting parameters:	Vc=350m/min Ap=0.2mm F=0.2mm/r	
Chips		
Surface quality		
	-LC chipbreaker	Similar products from overseas manufacturers
	<ul style="list-style-type: none"> -LH chipbreaker is more suitable for machining aluminum alloy in condition of large cutting depth and high feed rate. -LC chipbreaker is more suitable for machining aluminum alloy in condition of small cutting depth and low feed rate. -LC chipbreaker can be used in machining pure aluminum. 	

-EF -EM -ER

Specially designed for machining intensively adhesive and high-plasticity materials such as stainless steel, etc



-EF

Rake angle and inclined angle are specially designed for intensively adhesive stainless steel and high-plasticity materials which are hard to be machined. Sharp cutting edge enables it to cut lightly and easily and achieve good surface quality by well controlling chip breaking. It is especially suitable for finishing these kinds of materials.



-EM

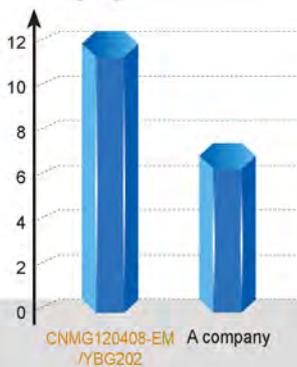
Inserts meet the requirements of machining intensively adhesive materials. Impact resistance of cutting edge is improved in addition to sharpness, which makes it suitable for semi-finishing and intermittent machining of adhesive materials such as austenitic stainless steel, etc.



-ER

Specially designed double rake angle with wide land achieves balance between edge security and sharpness, and effectively reduces cutting resistance and wear on groove.

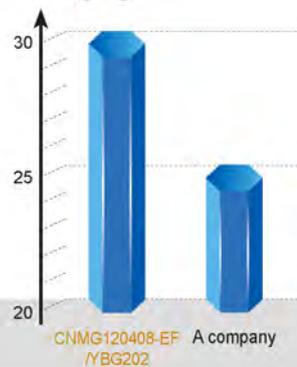
Number of machined parts / Cutting edge



Machining external of valve

Machining end surface of valve (intermittent machining)
Workpiece diameter: 135mm
Rotating speed: 350rpm
Feed rate: 0.25mm/r
Cutting depth: 1.5mm

Number of machined parts / Cutting edge



Machining external of valve
Workpiece diameter: 89mm
Rotating speed: 635rpm
Feed rate: 0.15mm/r
Cutting depth: 1.0mm



-SF

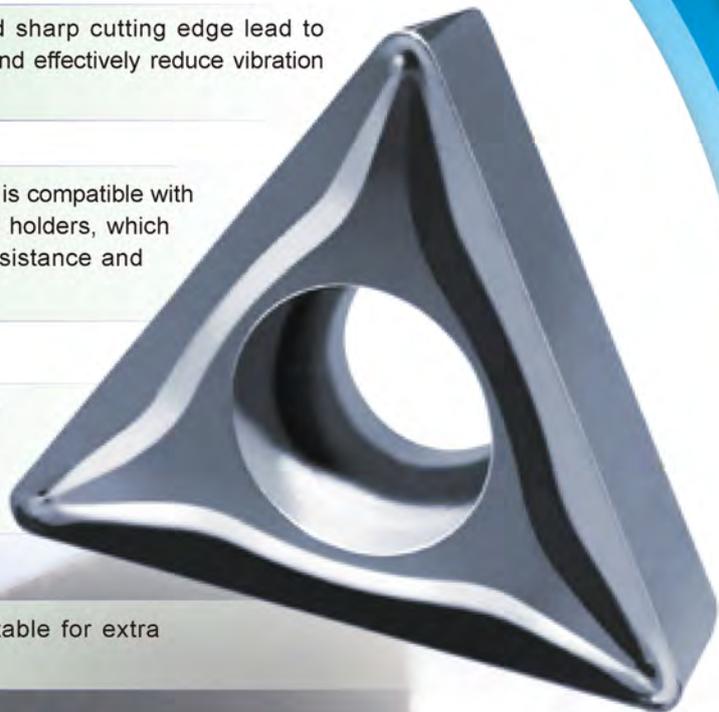
Chipbreaker for finishing

Unique nose design and sharp cutting edge lead to small cutting resistance and effectively reduce vibration of the tool holder.

With high re-positioning precision, the insert is compatible with specially developed cemented carbide tool holders, which can increase the capability of vibration resistance and improve machining quality.

Special treatment on insert's surface can reduce the possibility of chips adhering to the rake face of insert. Good performance of chip breaking and chip flowing ensures improved surface quality of workpiece.

By adopting excellent grade, it is suitable for extra finishing of various materials.

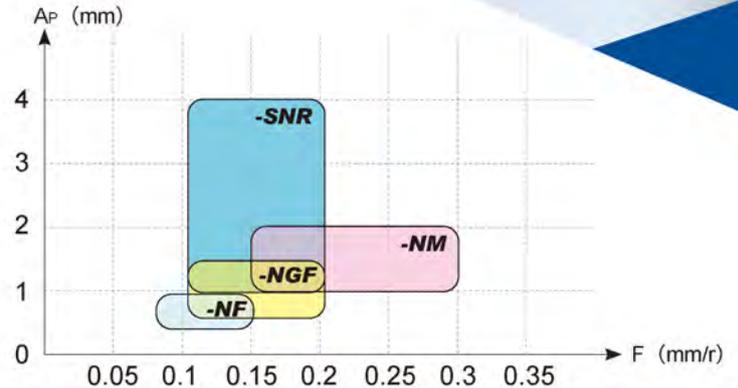


S- Ni-based Superalloy Machining Difficulties Overcome

Features of Ni-based superalloy machining

- High cutting resistance (containing a large amount of alloying elements, severe hardening, great plastic deformation);
- High cutting temperature;
- Severe wear of inserts.

Chipbreaker for machining of Ni-based superalloy should have tough and sharp insert nose, smooth rake face and proper inclination angle.



-NM for semi-finishing -SNR for high efficiency roughing
-NF for finishing -NGF for general finishing



-SNR Chipbreaker for roughing with large depth of cut

- Positive rake angle design, sharp cutting edge, low cutting resistance, effectively reducing groove wear;
- Cutting edge with variable rake angles increase cutting edge strength at large depths of cut. Edge strength increases as the depth of cut increases;
- Large slot width combined with unique edge rib design not only provides excellent chip breaking performance but also can effectively improve edge strength.



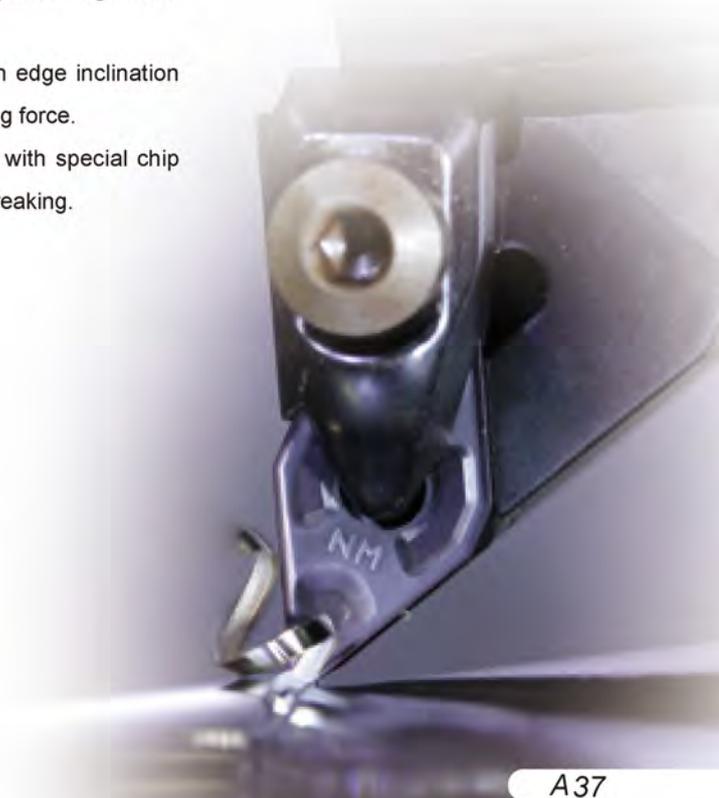
-NGF Chipbreaker for General Finishing

- Proper inclination angle design, sharp cutting edge, small cutting resistance;
- E-level tolerance of insert, high clamping accuracy, proper chipbreaker width, good chip breaking performance, excellent surface quality;
- Special edge treatment, high wear resistance.



-NFINM Chipbreaker for General Finishing

- The chipbreaker have smooth surface and smooth chip guide.
- The cutting edge is specially treated, strong and sharp, with high wear resistance.
- -NF chipbreaker large front angle design, combined with edge inclination and special edge design, sharp cutting edge, small cutting force.
- -NM chipbreaker double front angle design, combined with special chip cutting groove design, high cutting strength, good chip breaking.



BLACK DIAMOND INSERTS

Innovation of machining techniques for stainless steel turning

YBM

YBM153



Best choice for roughing of stainless steel with high-speed under good working condition

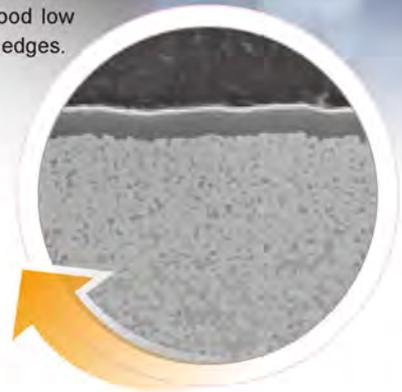
Application fields: YBM153 is suitable for finishing and semi-finishing of stainless steel with high cutting efficiency under stable working condition. Such as medium-size fluid valve components in petrochemical industry, flange and other parts in auto pipeline, valve and valve body in auto engine systems, ship mechanical parts, aviation hydraulic parts, adapting pieces in IT and semiconductor industry, medium and long-axis in food processing machinery, construction machinery and general machinery.

Coating

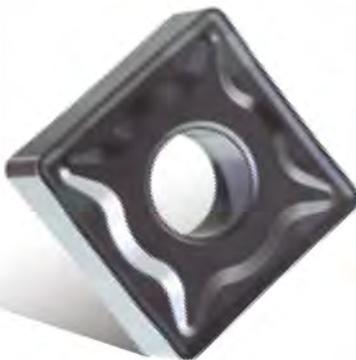
- ✓ CVD coating with advanced ultra-fine grain coating technology, greatly improves wear resistance of inserts.
- ✓ Thanks to special treatment on transition layer, multi-layer coating are combined firmly.
- ✓ The exceptionally smooth coating surface and good low friction ability can reduce the occurrence of built-up edges.

Substrate

- ✓ Added with resist high temperature rare element, inserts shows a good capability against plastic deformation and good capability of Red Hardness.
- ✓ Unique manufacturing technology improves high temperature toughness and wear resistance of substrate.



YBM253



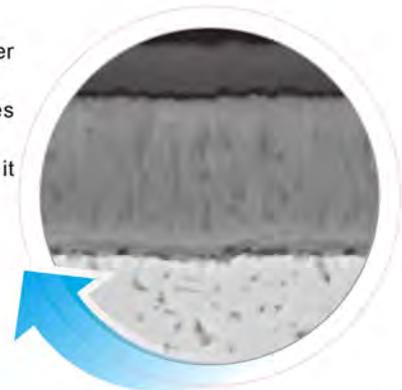
Ideal grade for turning of stainless steel with high cutting depth and high feed rate under bad working condition

Coating

- ✓ Ultra-fine grain coating technology provides better wear resistance and toughness;
- ✓ Improved remain internal stress design ensures good toughness and anti-cracking performance;
- ✓ Polishing treatment on coating surface makes it suitable for cutting adhesive materials.

Substrate

- ✓ With gradient carbide substrate insert has better impact resistance and cutting edge strength.



Application fields: YBM253 grade is suitable for roughing of heavy stainless steel parts with high cutting depth and high feed rate under the condition with great impact.



Coated Cemented Carbide CVD

Second generation of

YBC

BLACK DIAMOND INSERTS

Achieving both higher cutting speed and longer tool life

YBC152

Thick TiCN and thick Al₂O₃ coatings improve the impact toughness and abrasion resistance, which makes it suitable for finishing and semi-finishing of steel at high speed. Cutting speed can increase by more than 25%, while the tool life can increase by more than 30% at the same cutting speed.

YBC252

Comprising of thick TiCN and thick Al₂O₃ coatings, the grade has high capability against plastic deformation and good hardness of cutting edge. It is preferred grade for machining of steel from finishing to roughing. Under the same cutting conditions, the cutting speed can be increased by more than 25%, while the tool life can be 30% longer under the same cutting speed.

YBC352

Thickness TiCN and Al₂O₃ coating, with strongest toughness and plastic deformation resistance, the ideal grade for high efficient steel rough machining under the bad condition.

Test comparison of inserts abrasion

Workpiece material : 45#steel

Inserts: CNMG120408-DM

Cutting parameters: Vc=400m/min ap=1mm fn=0.2mm/r

Grade from other company

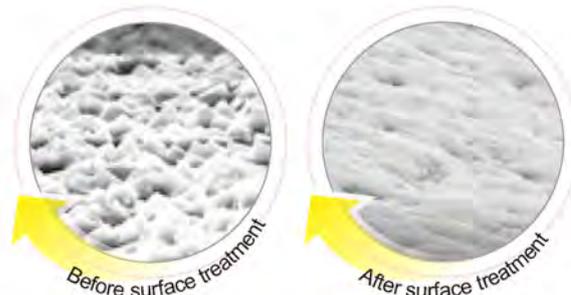
YBC152



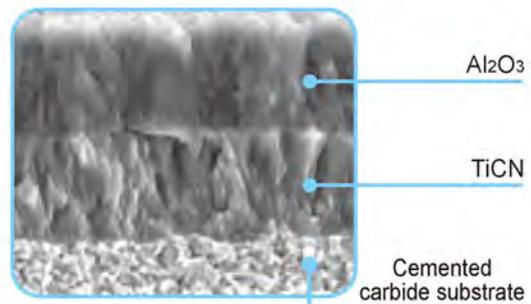
- Perfect unification of toughness and anti-plastic deformation. Specially designed cutting edge with "skeleton" realizes perfect unification of toughness and anti-plastic deformation.



- Roughness of insert surface is improved after special treatment on surface, which effectively reduces cutting forces, prevents workpiece adhering to surface of inserts and improves operation stability of inserts.



- The perfect combination of fibrous TiCN and fine grain Al₂O₃ obviously improves abrasion resistance and anti-breakage of inserts.



Coated Cemented Carbide CVD

YBD052

CVD coated grade, which is characterized by super fine grain and smooth surface, is the combination of hard substrate and coating (extra thick Al_2O_3 + thick TiCN). The grade is optimized for best wear resistance when machining gray cast iron at high speed under dry condition.

YBD102

CVD coated grade, which is the combination of hard substrate and coating (thick Al_2O_3 + thick TiCN), shows excellent wear resistance and impact resistance when machining nodular cast iron at high speed.

YBD152

CVD coated grade, which is the combination of hard substrate and coating (medium thick Al_2O_3 + thick TiCN), has good flaking resistance. It is suitable for turning of cast iron at high speed, and light intermittent cutting can be supported even at moderate speed. It is also suitable for milling of cast iron.

BLACK DIAMOND INSERTS YBD

First choice for high-efficiency and high-speed machining of cast iron



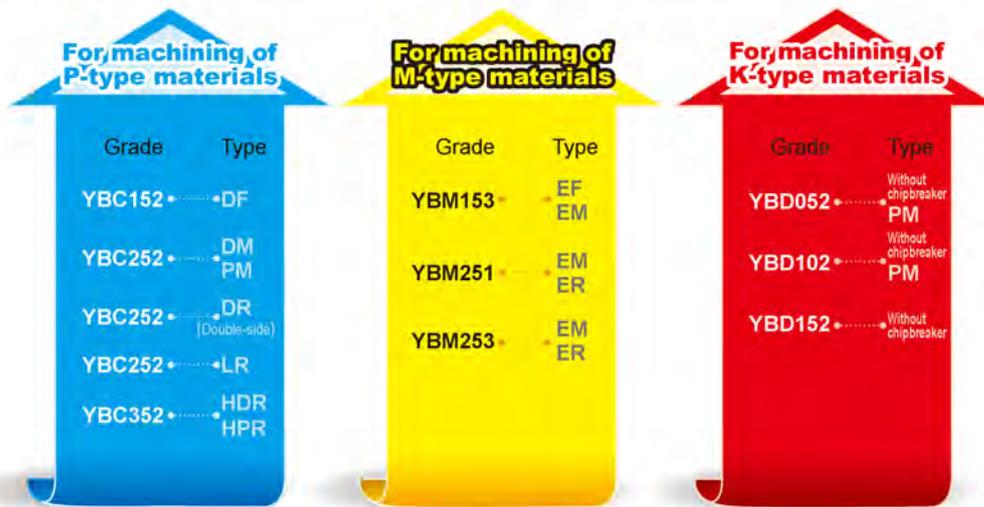
Layer of fine grain with compact surface

- The combination of thick coating and substrate with good hardness and impact resistance gives the inserts excellent impact resistance and stability under high temperature, and improves wear resistance of inserts. Inserts also satisfy the requirements of high speed and high feed rate when machining cast iron.
- The appearance of shining full black is easily identified.

Significant results

- Working efficiency has been improved. Both the coating and the substrate are suitable for machining cast iron at high speed and high feed rate. **Cutting speed can be increased by 30% to 40%.**
- Cost is reduced as tool life **is increased by 40%-50%.**
- High machining stability.

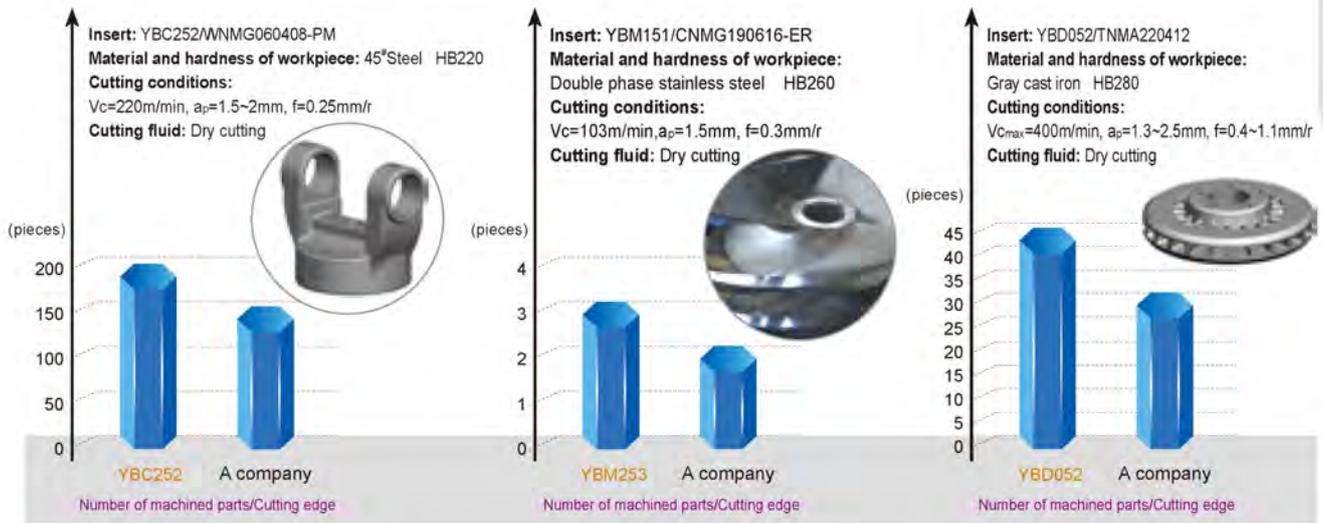
Recommended combination of grade and chipbreaker



Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed (m/min)
P Steel	For finishing	YBC152	220-500
	For semi-finishing	YBC252	180-480
	For roughing	YBC352	130-380
M Stainless steel	For finishing	YBM153	110-280
	For semi-finishing	YBM251	
	For roughing	YBM253	
K Cast iron	For finishing	YBD052	200-500
		YBD102	200-480
	For semi-finishing	YBD152	190-450

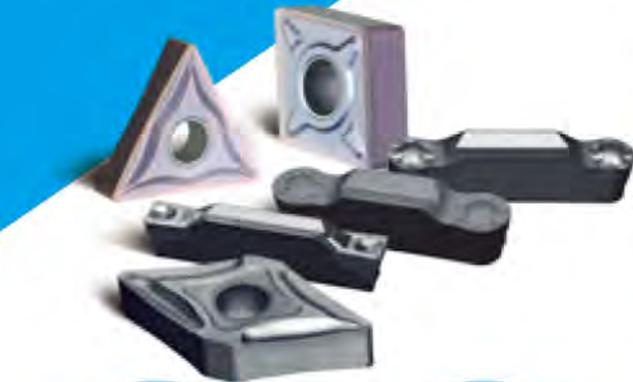
Case



Coated Cemented Carbide **PVD** makes it easy to machine materials which are hard to be machined

New nano coating grade

- Special coating techniques make inserts smooth, which leads to low friction and unobstructed chip flow.
- Unique coating with nano structure closely integrates with substrate, ensuring higher hardness and toughness.
- Excellent thermal stability and chemical stability can effectively protect cutting edge.



nc-TiAlN coating
(YBG202)



TiAlN base multi-elements
coating(YBG105)

High-performance nanostructure coating guarantees good toughness and hardness of inserts. Special coating technology guarantees smooth surface and excellent wear resistance. Outstanding thermal stability and chemical stability effectively protect cutting edge.

▶ **YBG102**

The combination of nc-TiAlN coating and fine grain substrate makes it suitable for turning of various materials and finishing and semi-finishing of high-temperature alloys.

▶ **YBG202**

nc-TiAlN coating and ultra-fine grain substrate makes it suitable for finishing and semi-finishing of various materials and turning of super alloy.

▶ **YBG302**

The combination of nc-TiAlN coating and tough cemented carbide substrate, which integrates security and wear resistance, makes it suitable for parting and grooving of various materials.

▶ **YBG105**

Finishing and semi-finishing for materials difficult to cut PVD coated grade

PVD coated grade, new TiAlN based multilayer coating, has higher wear resistance and Anti-thermal-oxidation ability. It is suitable for finishing and semi-finishing turning of various materials difficult to cut, such as high temperature alloy, heat resistant alloy, etc.

▶ **YBG205**

PVD coating grade for finishing of stainless steel
Suitable for relatively small workpieces which require high surface smoothness.

Superfine TiAlN nano coating added with wear-resistant and heat-resistant rare elements has high hardness and excellent heat-resistance, providing effective protection for the cutting edge. Special coating technology ensures stronger combination of coating and substrate. It is suitable for extra finishing of stainless steel.

▶ **YBG205H** *New*

It adopts high-cobalt ultra-fine grain matrix, and through special sintering process and tungsten toughness enhancement technology, the wear resistance, impact resistance and high temperature oxidation resistance are greatly improved. The new TiAlN-based composite coating effectively improves the hardness, thermal shock resistance, and crack expansion resistance of the coating, and is suitable for fine and semi-finish turning of stainless steel.

▶ **YBG212**

Nc-TiAlN coating combined with super tough substrate which made of super fine grain. It's suitable for finishing and roughing materials which are hard to be machined.

▶ **YBH053** *New*

Special high hard material processing grade

The high cobalt ultrafine particles are evenly distributed by special sintering process;

Excellent thermal conductivity and high temperature resistance, greatly improve the thermal crack resistance and plastic deformation resistance of the substrate, effectively prevent abnormal cutting edge failure;

Excellent red hardness and wear resistance of the substrate, greatly improve the life of the substrate, delay the size change of processing.

▶ **YBM215** *New*

PVD coating of multiple layer nanometer

Improved capability of grade's wear resistance and anti-high temperature increases the strength between grade and substrate and the tool stability. This grade is very suitable for turning for stainless steel.

▶ **YBS103** *New*

Turning grade for Ni-based S material

Fine wear resistance, and good capability against built-up edge and heat resistance. Suitable for turning of Ni-based materials.

Recommended combination of grade and chipbreaker

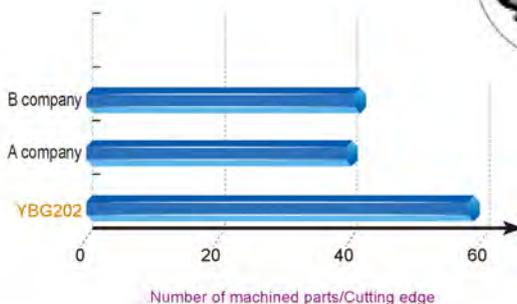
For machining P-type materials		For machining M-type materials		For machining S-type materials	
Grade	Type	Grade	Type	Grade	Type
YBG202	DM	YBG202	EF	YBG102	NF/NGF
YBG205		YBG205		YBG105	
YBM215		YBM215		YBG212	NGF
YBG202		YBG202	EM	YBG102	NM
YBG205		YBG205		YBG105	
YBM215		YBM215		YBS103	
				YBG102	SNR
				YBG105	
				YBG212	
				YBS103	

Recommended cutting parameters

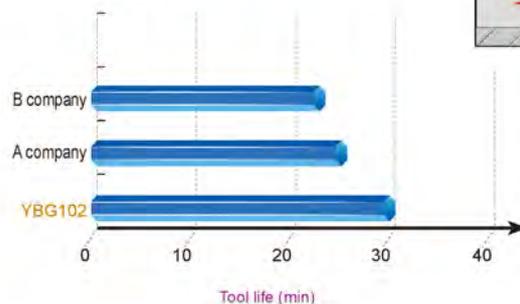
Workpiece material	Range of machining	Grade	Recommended cutting speed (m/min)
P Steel	For finishing	YBG102	180-460
	For semi-finishing	YBG202 YBG205	150-380
M Stainless steel	For finishing ~ for semi-finishing	YBG202 YBG205 YBM215	170-300
S Heat resistant alloy Ti alloy	For finishing ~ for semi-finishing	YBG102	30-60
		YBG105	40-70
		YBG212	30-50
	For roughing	YBS103	40-90
		YBG102	20-40
		YBG105	30-40
YBG212	20-40		
YBS103	20-50		

Case

Insert: YBG202/TNMG120404-EF
 Hardness and material of workpiece: 0Cr18Ni9 HB240
 Cutting conditions: $V_c=200\text{m/min}$, $a_p=1\text{mm}$,
 $f=0.15\text{mm/r}$
 Cutting fluid: Dry cutting



Insert: YBG102/DNEG150404-NF
 Hardness and material of workpiece: High temperature alloy Inconel 718 HRC \geq 39
 Cutting conditions: $V_c=80\text{m/min}$, $a_p=0.3\text{mm}$,
 $f=0.15\text{mm/r}$
 Cutting fluid: Dry cutting



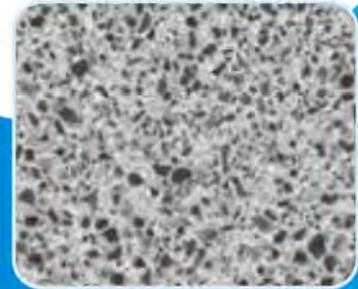
Cermet & Coated Cermet

The chemical stability between Ti(CN) base cermet inserts and workpieces is relatively high, which reduces the friction and temperature of the cutting edge during cutting, preventing mutual diffusion of atoms of the workpiece material and the inserts, and improving resistance to bonding abrasion. Therefore, Ti(CN) base cermet shows good capability of Red Hardness and resistance to crater wear. It is an optimal material for high-speed finishing and semi-finishing of steel. High temperature strength of cermet is higher than that of WC-Co, and toughness better than that of Al₂O₃ and Si₃N₄ ceramic. This fulfils the application blank of WC-base cemented carbide and Al₂O₃ and Si₃N₄ ceramic from finishing to semi-finishing at high speed.

Product features

Scientifically designed structure ensures good material performance and long tool life. Refined production management assures the stability of product quality.

- Symmetrical fine grain organization, together with the control of symmetrical organization and toric phase structure, improves the strength and hardness of cermet.
- Intensified bonding phase and well-designed grain boundary improve the high temperature capacity, heat conductivity and thermal vibration resistance.
- Coating of Physical Vapor Deposition (PVD) is applied to cermet substrate with high toughness, so that the grade has high hardness and toughness with wide-range application.



Substrate of cermet grade of YNG151 (homogenized ultra-fine structure)



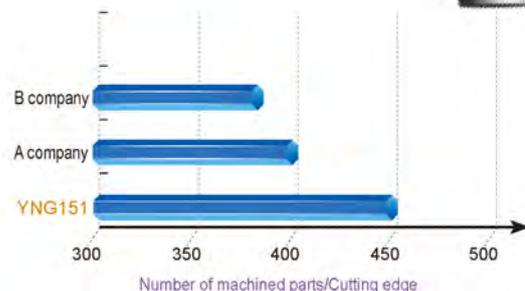
PVD coating organization structure of cermet

Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed (m/min)
P Steel		YNG151	260-550
		YNG151C	260-580
M Stainless steel	For finishing	YNG151	170-330
		YNG151C	160-350
K Cast iron		YNG151	250-400
		YNG151C	270-420

Case

Insert: YNG151/CNMG120404-SF
 Hardness and material of workpiece: 20CrMnTi HB180-223
 Cutting parameters: $V_C=220\text{m/min}$
 $a_p=0.5\sim 1.0\text{mm}$
 $f=0.14\text{mm/r}$



Outstanding chip breaking Good surface quality



Substrate of YD101: the combination of cemented carbide phase WC of fine grain and bonding phase Co

Cemented Carbide Grade

Uncoated cemented carbide grade is widely used for machining of non-ferrous metal, high temperature alloy, etc. It is economical and can be universally applied.



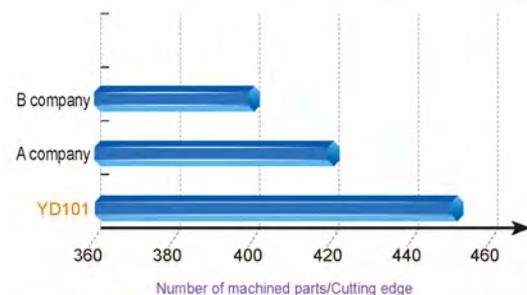
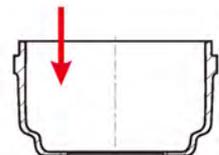
Substrate of YD201: the combination of cemented carbide phase WC of middle grain and bonding phase Co

Recommended cutting parameters

Workpiece material	Range of machining	Grade	Recommended cutting speed (m/min)
K Cast iron	For semi-finishing For roughing	YD201	60-130
N Non-ferrous metal	For finishing For semi-finishing	YD101	110-1750
S Heat resistant alloy Ti alloy	For finishing	YD101	20-50

Case

Insert: YD101/CCGX09T304-LH
 Workpiece material: ZL105 HB70
 Cutting parameters: $V_c=400\text{m/min}$
 $a_p=1\text{mm}$
 $f=0.3\text{mm/r}$



Workpiece has high surface quality and high dimensional precision.



Table of correctional coefficient between material hardness and cutting speed

Workpiece material	Theoretical Hardness	Correctional coefficient between hardness of materials and cutting speed									
		Hardness decrease		Hardness difference(Measured value – Theoretical value)					Hardness increase		
		-60	-40	-20	0	+20	+40	+60	+80	+100	
P	HB180	1.42	1.24	1.11	1.0	0.91	0.84	0.77	0.72	0.67	
M	HB180	1.44	1.25	1.11	1.0	0.91	0.84	0.78	0.73	0.68	
K	Grey cast iron	HB220	1.21	1.13	1.06	1.0	0.95	0.90	0.86	0.82	0.79
	Nodular cast iron	HB250	1.33	1.21	1.09	1.0	0.91	0.84	0.75	0.70	0.65
N	HB75			1.05	1.0	0.95					
S	HB350			1.12	1.0	0.89					
Rockwell hardness HRC			-6	-3	0	+3	+6	+9			
H	HRC60		1.10	1.02	1.0	0.96	0.93	0.90			

Actual Cutting Speed = Recommended Cutting Speed × Correctional Coefficient of Cutting Speed

※Please find recommended cutting parameters on insert packing box.

Example: If the material you are going to machine is normal alloy steel, whose theoretical hardness is HB180, and the selected insert is CNMG120404-DF/YBC151, then the recommended cutting speed is $V=150\text{m/min}$. If the hardness measured value of the material is HB220, then the hardness difference value is $220-180=+40$. Correctional coefficient found in the table is 0.84. Therefore, the actual applicable cutting speed is $V_c=150 \times 0.84=126\text{m/min}$.

Correctional coefficient table between tool life and cutting speed

Tool life Insert materials	Correctional coefficient between tool life and cutting speed					
	10 minutes	15 minutes (Standard life)	30 minutes	45 minutes	60 minutes	90 minutes
YBC152	1.25	1.00	0.68	0.54	0.46	0.37
YBC252	1.55	1.00	0.47	0.30	0.22	0.14
YBM153	1.32	1.00	0.64	0.48	0.37	0.31
YBM215	1.22	1.00	0.85	0.77	0.72	0.67
YBM251	1.19	1.00	0.75	0.63	0.56	0.47
YBM253	1.22	1.00	0.73	0.61	0.54	0.45
YBG202	1.10	1.00	0.85	0.77	0.72	0.66
YBG205	1.15	1.00	0.82	0.74	0.69	0.64
YBD052	1.22	1.00	0.80	0.65	0.60	0.55
YBD102	1.20	1.00	0.75	0.62	0.58	0.50
YBD152	1.11	1.00	0.70	0.60	0.50	0.40
YBG105	1.28	1.00	0.79	0.72	0.63	0.58
YBG212	1.25	1.00	0.75	0.70	0.60	0.50
YBS103	1.35	1.00	0.85	0.78	0.68	0.62

Actual cutting speed = Recommended cutting speed × Correctional coefficient of cutting speed

Example: If the material you are going to machine is normal alloy steel, and the selected insert is CNMG120404-DF/YBC151, then the recommended cutting speed is $V=250\text{m/min}$ (standard life is 15 minutes). If you expect the tool life to reach 60 minutes, the correctional coefficient found in the table is 0.67, then the applicable cutting speed is $V_c=250 \times 0.67=167.5\text{m/min}$.



TURNING General Turning Inserts

General turning inserts code key

General turning

General turning inserts code key

Insert shape/Code		
A	B	C
D	E	H
K	L	M
O	P	R
S	T	T
V	W	Others Z
Insert shape		

Metric							
Code	With/Without hole	With/Without chipbreaker	Section plane of insert	Code	With/Without hole	With/Without chipbreaker	Section plane of insert
B	With	Without		N	Without	Without	
H	With	Single-side		R	Without	Single-side	
C	With	Without		F	Without	Double-side	
J	With	Double-side		A	With	Without	
W	With	Without		M	With	Single-side	
T	With	Single-side		G	With	Double-side	
Q	With	Without		X	---	---	Special
U	With	Double-side					
Chipbreaker and clamping system							

T N M G

Clearance angle of main cutting edge			
Code	Clearance angle	Code	Clearance angle
A	3°	B	5°
C	7°	D	15°
E	20°	F	25°
G	30°	N	0°
P	11°	O	Other clearance angles

Tolerance											
Code	Nose height m Tolerance(mm)	Inscribed circle IC Tolerance(mm)	Thickness S Tolerance(mm)	(Reference) Details of M-level tolerance (Identified by shape)							
				● Nose height tolerance(mm)							
	Inscribed circle	Regular triangle	Square	Diamond with 80°	Diamond with 55°	Diamond with 35°	Round				
A	±0.005	±0.025	±0.025	6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---	
F	±0.005	±0.013	±0.025	9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---	
C	±0.013	±0.025	±0.025	12.7	±0.13	±0.13	±0.13	±0.15	---	---	
H	±0.013	±0.013	±0.025	15.875	±0.15	±0.15	±0.15	±0.18	---	---	
E	±0.025	±0.025	±0.025	19.05	±0.15	±0.15	±0.15	±0.18	---	---	
G	±0.025	±0.025	±0.13	25.4	---	±0.18	---	---	---	---	
J	±0.005	±0.05-±0.13	±0.025	● Tolerance of inscribed circle IC(mm)							
	Inscribed circle	Regular triangle	Square	Diamond with 80°	Diamond with 55°	Diamond with 35°	Round				
K	±0.013	±0.05-±0.13	±0.025	6.35	±0.05	±0.05	±0.05	±0.05	±0.05	---	
L	±0.025	±0.05-±0.13	±0.025	9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	
M	±0.08-±0.18	±0.05-±0.13	±0.13	12.7	±0.08	±0.08	±0.08	±0.08	---	±0.08	
N	±0.08-±0.18	±0.05-±0.13	±0.025	15.875	±0.10	±0.10	±0.10	±0.10	---	±0.10	
U	±0.13-±0.38	±0.08-±0.25	±0.13	19.05	±0.10	±0.10	±0.10	±0.10	---	±0.10	
				25.4	---	±0.13	---	---	---	±0.13	

General turning inserts code key

Diameter of IC	Insert shape							
	C	D	R	S	T	V	W	K
3.97					06			
5.0			05					
5.56					09			
6.0			06					
6.35	06	07			11	11		
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0		19	16					
19.05	19		19	19	33			
20.0			20					
25.0	25	25	25					
25.4			25	25				
31.75			31					
32			32					

Length of cutting edge

Thickness is defined as the height from the bottom of insert to the highest part of cutting edge

Code	Insert thickness(mm)
00	0.79
T0	0.99
01	1.59
T1	1.98
02	2.38
T2	2.58
03	3.18
T3	3.97
04	4.76
T4	4.96
05	5.96
T5	5.95
06	6.35
T6	6.75
07	7.94
09	9.52
T9	9.72
11	11.11
12	12.70

Insert thickness

22 04 08 - DM (ISO)

4 3 2 (inch)

Inscribed circle

Code	Diameter of IC(mm)
2	6.35
3	9.525
4	12.7
5	15.875
6	19.05
8	25.4

Thickness

Code	Thickness (mm)
2	3.18
3	4.76
4	6.35
5	7.94
6	9.52

Nose radius

Code	Nose radius (mm)
0	0.2
1	0.4
2	0.8
3	1.2
4	1.6
5	2.0
6	2.4

Nose radius code

Code	Nose radius (mm)
00	No radius
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	Others

Diameter of insert (Metric) Round insert

Chipbreaker code

DF	DM	DR
HF	HM	HR
EF	EM	ER
NF	NM	SF
PM	SNR	

General turning inserts code key

Metric and inch comparison table for negative inserts

General turning Metric-inch comparison table for general turning inserts

C-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	090304	321	
	090308	322	-XF
	120404	431	-XM
	120408	432	-DF
	120412	433	-SF
	120416	434	-EF
	160608	542	-NF
	160612	543	-PM
	160616	544	-DM
	190608	642	-EM
	190612	643	-NM
	190616	644	-DR
	190624	646	-ER
	250724	856	-LR
	250732	858	-HDR
	250924	866	-SNR
	250932	868	

D-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	110404	331	-XF
	110408	332	-XM
	110412	333	-DF
	150404	431	-SF
	150408	432	-NF
	150412	433	-PM
	150604	441	-DM
	150608	442	-EM
	150612	443	-NM
	150616	444	-DR
	190608	542	-ER
	190612	543	-HDR
	190616	543	-SNR
	190612	543	-NGF

V-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	160404	331	-XF -XM
	160408	332	-DF -EF
	160412	333	-SF -NF
			-PM -DM
			-EM -NM
			-SNR -NGF

R-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	120400	43	

W-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	06T304	3(2.5)1	
	06T308	3(2.5)2	-XF
	06T312	3(2.5)3	-XM
	060404	331	-DF
	060408	332	-SF
	060412	333	-EF
	060412	333	-NF
	080404	431	-PM
	080408	432	-DM
	080412	433	-EM
			-NM
			-DR
			-SNR

T-type negative angle	(ISO)	(Inch)	Chipbreaker	
Insert shape 	110304	221		
	110308	222		
	160404	331	-XF	
	160408	332	-XM	
	160412	333	-DF	
	220404	431	-SF	
	220408	432	-EF	
	220412	433	-PM	
	220416	434	-DM	
	270608	542	-EM	
	270612	543	-NM	
	270616	544	-DR	
				-ER
				-LR
			-HDR	
			-SNR	

S-type negative angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	090304	321	
	090308	322	
	090312	323	-XF
	120404	431	-XM
	120408	432	-DF
	120412	433	-SF
	120416	434	-EF
	150608	542	-PM
	150612	543	-DM
	150616	544	-EM
	190412	633	-NM
	190424	636	-DR
	190612	643	-ER
	190616	644	-LR
	190616	644	-HDR
	250724	856	-SNR
	250732	858	
	250924	866	
	250932	868	

Metric-inch comparison table for general turning inserts

Metric and inch comparison table for positive insert

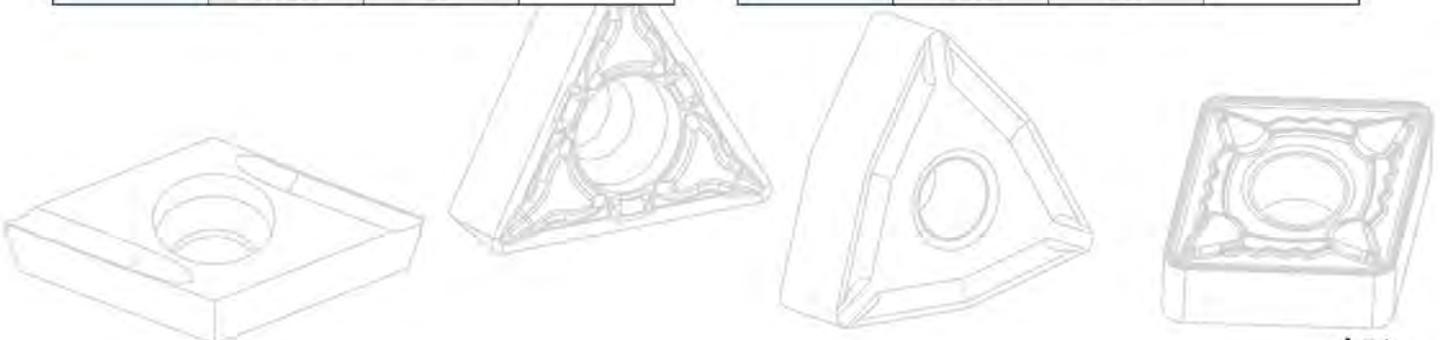
C-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	060202	2(1.5)0	-XF
	060204	2(1.5)1	-XM
	060208	2(1.5)2	-SF
	09T302	3(2.5)0	-HF
	09T304	3(2.5)1	-EF
	09T308	3(2.5)2	-HM
	120404	431	-EM
	120408	432	-HR
	120412	433	-LH

D-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	070202	2(1.5)0	-XF
	070204	2(1.5)1	-XM
	070208	2(1.5)2	-SF
	11T302	3(2.5)0	-HF
	11T304	3(2.5)1	-EF
	11T308	3(2.5)2	-HM
	11T312	3(2.5)3	-EM
			-LH
			-LC

T-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	06T102	1.2(1.2)0	
	06T104	1.2(1.2)1	
	06T108	1.2(1.2)2	
	090202	1.8(1.5)0	
	090204	1.8(1.5)1	
	090208	1.8(1.5)2	
	110202	2(1.5)0	
	110204	2(1.5)1	-XF
	110208	2(1.5)2	-XM
	110302	220	-SF
	110304	221	-HF
	110308	222	-EF
	16T302	3(2.5)0	-HM
	16T304	3(2.5)1	-EM
	16T308	3(2.5)2	-HR
	16T312	3(2.5)3	-LH
	160400	330	-LC
	220408	432	
	220412	433	
	220416	434	
	270408	532	
	270412	533	
	330612	643	
	330616	644	

S-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	060204	2(1.5)1	
	09T302	3(2.5)0	
	09T304	3(2.5)1	-XF
	09T308	3(2.5)2	-XM
	120404	431	-HF
	120408	432	-EF
	120412	433	-HM
	150404	531	-EM
	150408	532	-HR
	150412	533	-LH
	190408	632	-LC
	190412	633	
	190416	634	

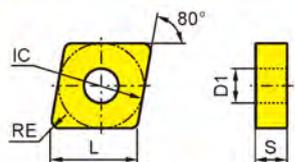
V-type positive angle	(ISO)	(Inch)	Chipbreaker
Insert shape 	110202	2(1.5)0	
	110204	2(1.5)1	-XF
	110208	2(1.5)2	-XM
	110302	220	-SF
	110304	221	-HF
	110308	222	-NF
	160402	330	-LH
	160404	331	-LC
	160408	332	-NGF
	160412	333	



General turning

Metric-inch comparison table for general turning inserts

CN (Negative inserts)



 Good working condition  Normal working condition  Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P Steel					
M Stainless steel					
K Cast iron					
N Non-ferrous metal					
S Heat resistant alloy, Ti alloy					

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented
 For finishing	CNMG120404-XF	12.9	12.7	4.76	5.16	0.4	★	★																					
	CNMG120408-XF	12.9	12.7	4.76	5.16	0.8	★	★																					
	CNMG120412-XF	12.9	12.7	4.76	5.16	1.2	★	★																					
 For finishing	CNMG090304-DF	9.7	9.525	3.18	3.81	0.4			○	○		○																	
	CNMG090308-DF	9.7	9.525	3.18	3.81	0.8			○	○																			
	CNMG120404-DF	12.9	12.7	4.76	5.16	0.4	★	★					○									○							
	CNMG120408-DF	12.9	12.7	4.76	5.16	0.8	★	★					○										●						
	CNMG120412-DF	12.9	12.7	4.76	5.16	1.2	★	○																					
 For finishing	CNMG090304-SF	9.7	9.525	3.18	3.81	0.4					○											○							
	CNMG090308-SF	9.7	9.525	3.18	3.81	0.8					○												○	★					
	CNMG120404-SF	12.9	12.7	4.76	5.16	0.4					○							★											★
	CNMG120408-SF	12.9	12.7	4.76	5.16	0.8					○								★										★
	CNMG120412-SF	12.9	12.7	4.76	5.16	1.2					○													○					
 For finishing	CNMG090304-EF	9.7	9.525	3.18	3.81	0.4						●	★					★	○										
	CNMG090308-EF	9.7	9.525	3.18	3.81	0.8						○	★						★	○									
	CNMG120404-EF	12.9	12.7	4.76	5.16	0.4							●	★					★	★									
	CNMG120408-EF	12.9	12.7	4.76	5.16	0.8							●	●	★					★	★								
	CNMG120412-EF	12.9	12.7	4.76	5.16	1.2							○	★						★	★								

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool



Page A136

A142

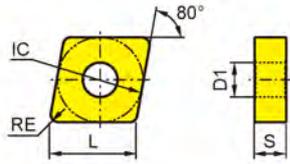
A143

A154

A155

A194

CN (Negative inserts)



Workpiece material	Good working condition 😊			Normal working condition 😐			Bad working condition 😞		
	P	M	K	N	S				
P Steel	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	
M Stainless steel	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	
K Cast iron	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	
N Non-ferrous metal	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	
S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊	

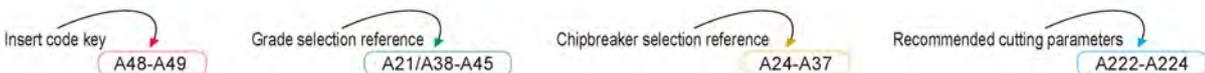
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																							
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315	YB9320	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet coated carbide	Cemented carbide	
ADF For finishing	CNMG120404-ADF	12.9	12.7	4.76	5.16	0.4											★	★												
	CNMG120408-ADF	12.9	12.7	4.76	5.16	0.8											★	★												
	CNMG120412-ADF	12.9	12.7	4.76	5.16	1.2											★	★												
NF For finishing	CNEG120404-NF	12.9	12.7	4.76	5.16	0.4					●	★										★							○	
	CNEG120408-NF	12.9	12.7	4.76	5.16	0.8					○	★																	○	
	CNEG120412-NF	12.9	12.7	4.76	5.16	1.2					○	★																	○	
PM For semi-finishing	CNMG090304-PM	9.7	9.525	3.18	3.81	0.4					★	○																		
	CNMG090308-PM	9.7	9.525	3.18	3.81	0.8					○	○																		★
	CNMG120404-PM	12.9	12.7	4.76	5.16	0.4					★	★														★	★			
	CNMG120408-PM	12.9	12.7	4.76	5.16	0.8					★	★														★	★			
	CNMG120412-PM	12.9	12.7	4.76	5.16	1.2					○	★														★	★			
	CNMG120416-PM	12.9	12.7	4.76	5.16	1.6					★	○														★	○			
	CNMG160608-PM	16.1	15.875	6.35	6.35	0.8					○	○														○	○			
	CNMG160612-PM	16.1	15.875	6.35	6.35	1.2					○	○														★	○			
	CNMG160616-PM	16.1	15.875	6.35	6.35	1.6						○														○	○			
	CNMG190608-PM	19.3	19.05	6.35	7.94	0.8					★	○																		★
	CNMG190612-PM	19.3	19.05	6.35	7.94	1.2					★	★														○	★			
	CNMG190616-PM	19.3	19.05	6.35	7.94	1.6					★	○														○				

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool



Page A136 A142 A143 A154 A155 A194

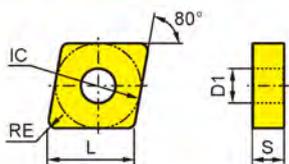


General turning

Cemented carbide and cermet inserts

Cemented carbide and cermet inserts

CN (Negative inserts)



 Good working condition  Normal working condition  Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel					
M Stainless steel					
K Cast iron					
N Non-ferrous metal					
S Heat resistant alloy, Ti alloy					

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide
XM  For semi-finishing	CNMG120404-XM	12.9	12.7	4.76	5.16	0.4	★	★																					
	CNMG120408-XM	12.9	12.7	4.76	5.16	0.8	★	★																					
	CNMG120412-XM	12.9	12.7	4.76	5.16	1.2	★	★																					
	CNMG120416-XM	12.9	12.7	4.76	5.16	1.6	★	★																					
	CNMG160608-XM	16.1	15.875	6.35	6.35	0.8	★	★																					
	CNMG160612-XM	16.1	15.875	6.35	6.35	1.2	★	★																					
	CNMG160616-XM	16.1	15.875	6.35	6.35	1.6	★	★																					
	CNMG190608-XM	19.3	19.05	6.35	7.97	0.8	★	★																					
	CNMG190612-XM	19.3	19.05	6.35	7.97	1.2	★	★																					
	CNMG190616-XM	19.3	19.05	6.35	7.97	1.6	★	★																					
DM  For semi-finishing	CNMG090304-DM	9.7	9.525	3.18	3.81	0.4			○	○																			
	CNMG090308-DM	9.7	9.525	3.18	3.81	0.8			○																				
	CNMG120404-DM	12.9	12.7	4.76	5.16	0.4	★	★			●		○													●			
	CNMG120408-DM	12.9	12.7	4.76	5.16	0.8	★	★			●		●													●			
	CNMG120412-DM	12.9	12.7	4.76	5.16	1.2	★	★			○																		
	CNMG120416-DM	12.9	12.7	4.76	5.16	1.6				○																			
	CNMG160608-DM	16.1	15.875	6.35	6.35	0.8	★	★																					
	CNMG160612-DM	16.1	15.875	6.35	6.35	1.2			○	★																			
	CNMG160616-DM	16.1	15.875	6.35	6.35	1.6	★	○																					
	CNMG190608-DM	19.3	19.05	6.35	7.94	0.8			○	○																			
	CNMG190612-DM	19.3	19.05	6.35	7.94	1.2	★	★																					
	CNMG190616-DM	19.3	19.05	6.35	7.94	1.6				★																			

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A136

A142

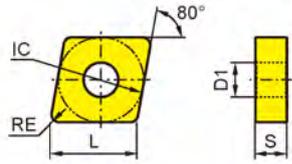
A143

A154

A155

A194

CN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315	YBG302	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201	
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron																			😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal																							😊	😊	😊
S Heat resistant alloy, Ti alloy																			😊				😊	😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																								
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315	YBG302	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Coated cermet	Cemented carbide		
EM For semi-finishing	CNMG120404-EM	12.9	12.7	4.76	5.16	0.4									●	★	★														
	CNMG120408-EM	12.9	12.7	4.76	5.16	0.8									●	★	★														
	CNMG120412-EM	12.9	12.7	4.76	5.16	1.2									●	★															
	CNMG160608-EM	16.1	15.875	6.35	6.35	0.8						○			○	★								○	★						
	CNMG160612-EM	16.1	15.875	6.35	6.35	1.2									○	★								○	★						
	CNMG160616-EM	16.1	15.875	6.35	6.35	1.6									○	★								○	★						
EG For semi-finishing	CNMG120404-EG	12.9	12.7	4.76	5.16	0.4												★													
	CNMG120408-EG	12.9	12.7	4.76	5.16	0.8												★													
	CNMG120412-EG	12.9	12.7	4.76	5.16	1.2												★													
EH For semi-finishing	CNMG120408-EH	12.9	12.7	4.76	5.16	0.8												★													
NM For semi-finishing	CNMG120404-NM	12.9	12.7	4.76	5.16	0.4								○	★									★						○	
	CNMG120408-NM	12.9	12.7	4.76	5.16	0.8									●	★									★					○	
	CNMG120412-NM	12.9	12.7	4.76	5.16	1.2									○	★									○					○	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Cemented carbide and cermet inserts

Applicable tool



Insert code key

A48-A49

Grade selection reference

A21/A38-A45

Chipbreaker selection reference

A24-A37

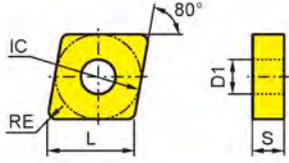
Recommended cutting parameters

A222-A224

Cemented carbide and cermet inserts

CN (Negative inserts)

😊 Good working condition 🟡 Normal working condition 🟠 Bad working condition



Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
Steel (P)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Stainless steel (M)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Cast iron (K)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Non-ferrous metal (N)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
Heat resistant alloy, Ti alloy (S)	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide													Cermet	Cermet	Cermet							
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153				YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152
LR  Light-load roughing	CNMM120408-LR	12.9	12.7	4.76	5.16	0.8		★																					
	CNMM120412-LR	12.9	12.7	4.76	5.16	1.2		★																					
	CNMM120416-LR	12.9	12.7	4.76	5.16	1.6		★																					
	CNMM160608-LR	16.1	15.875	6.35	6.35	0.8		★																					
	CNMM160612-LR	16.1	15.875	6.35	6.35	1.2		★																					
	CNMM160616-LR	16.1	15.875	6.35	6.35	1.6		★																					
	CNMM160624-LR	16.1	15.875	6.35	6.35	2.4		★																					
	CNMM190612-LR	19.3	19.05	6.35	7.94	1.2		★																					
	CNMM190616-LR	19.3	19.05	6.35	7.94	1.6		★																					
	CNMM190624-LR	19.3	19.05	6.35	7.94	2.4		★																					
	CNMM250924-LR	25.79	25.4	9.525	9.12	2.4		★																					
DR  Light-load roughing	CNMG120408-DR	12.9	12.7	4.76	5.16	0.8	★	★													●	●							
	CNMG120412-DR	12.9	12.7	4.76	5.16	1.2	○	★														●	●						
	CNMG120416-DR	12.9	12.7	4.76	5.16	1.6	○	○															●	●					
	CNMG160608-DR	16.1	15.875	6.35	6.35	0.8		○															○						
	CNMG160612-DR	16.1	15.875	6.35	6.35	1.2		★															●	○					
	CNMG160616-DR	16.1	15.875	6.35	6.35	1.6		★																					
	CNMG190608-DR	19.3	15.875	6.35	7.94	0.8		○															●	○					
	CNMG190612-DR	19.3	19.05	6.35	7.94	1.2		○	★															○	○				
	CNMG190616-DR	19.3	19.05	6.35	7.94	1.6		○	★																○				
	CNMG190624-DR	19.3	19.05	6.35	7.94	2.4		○	○																				

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool



Page A136

A142

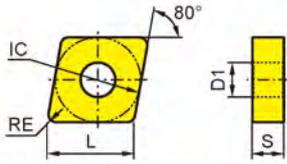
A143

A154

A155

A194

CN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊
M	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊
K	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊
N	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊
S	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																								
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide		
Without chipbreaker 	CNMA120404	12.9	12.7	4.76	5.16	0.4																			★	○	○				
	CNMA120408	12.9	12.7	4.76	5.16	0.8																				★	★	★			
	CNMA120412	12.9	12.7	4.76	5.16	1.2																					★	★	★		
	CNMA120416	12.9	12.7	4.76	5.16	1.6																					★	★	○		
	CNMA160608	16.1	15.875	6.35	6.35	0.8																					○				
	CNMA160612	16.1	15.875	6.35	6.35	1.2																					★				
	CNMA160616	16.1	15.875	6.35	6.35	1.6																					○	★	○		
	CNMA160620	16.1	15.875	6.35	6.35	2.0																					○				
	CNMA160630	16.1	15.875	6.35	6.35	3.0																					○				
	CNMA190612	19.3	19.05	6.35	7.94	1.2																					★	○	★		
	CNMA190616	19.3	19.05	6.35	7.94	1.6																					○	★	★		
All round 	CNMG120404	12.9	12.7	4.76	5.16	0.4																				○					
	CNMG120408	12.9	12.7	4.76	5.16	0.8		★	★																	○			★	★	
	CNMG120412	12.9	12.7	4.76	5.16	1.2		★	★																	○	○	○			
	CNMG160608	16.1	15.875	6.35	6.35	0.8																					○				
	CNMG160612	16.1	15.875	6.35	6.35	1.2																					○				
	CNMG160616	16.1	15.875	6.35	6.35	1.6																					○				
	CNMG190608	19.3	19.05	6.35	7.94	0.8																					○				
	CNMG190612	19.3	19.05	6.35	7.94	1.2																					○				
CNMG190616	19.3	19.05	6.35	7.94	1.6																					○					

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A158 A164 A165 A176 A177 A216

General turning

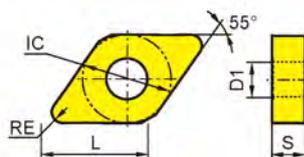
Cemented carbide and cermet inserts



General Turning Inserts

Cemented carbide and cermet inserts

DN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
N Non-ferrous metal	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

General turning

Cemented carbide and cermet inserts

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																											
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide					
XF  For finishing	DNMG110404-XF	11.6	9.525	4.76	3.18	0.4	★	★																										
	DNMG110408-XF	11.6	9.525	4.76	3.18	0.8	★	★																										
	DNMG150604-XF	15.5	12.7	6.35	5.16	0.4	★	★																										
	DNMG150608-XF	15.5	12.7	6.35	5.16	0.8	★	★																										
	DNMG150612-XF	15.5	12.7	6.35	5.16	1.2	★	★																										
DF  For finishing	DNMG110404-DF	11.6	9.525	4.76	3.81	0.4																									●			
	DNMG110408-DF	11.6	9.525	4.76	3.81	0.8																												
	DNMG110412-DF	11.6	9.525	4.76	3.81	1.2																												
	DNMG150404-DF	15.5	12.7	4.76	5.16	0.4							★	★																				
	DNMG150408-DF	15.5	12.7	4.76	5.16	0.8							★	★																				
	DNMG150412-DF	15.5	12.7	4.76	5.16	1.2																												
	DNMG150604-DF	15.5	12.7	6.35	5.16	0.4							★	★																				
	DNMG150608-DF	15.5	12.7	6.35	5.16	0.8							★	○																				
DNMG150612-DF	15.5	12.7	6.35	5.16	1.2																													
SF  For finishing	DNMG110404-SF	11.6	9.525	4.76	3.81	0.4																									○	★		
	DNMG150404-SF	15.5	12.7	4.76	5.16	0.4																										○	★	
	DNMG150408-SF	15.5	12.7	4.76	5.16	0.8																											○	★
	DNMG150604-SF	15.5	12.7	6.35	5.16	0.4																											○	★
	DNMG150608-SF	15.5	12.7	6.35	5.16	0.8																											○	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A137



A144



A145



A156



A157



A195



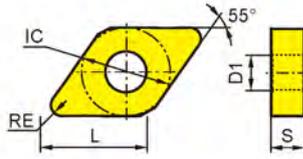
A196



General Turning Inserts

Cemented carbide and cermet inserts

DN (Negative inserts)



😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
M	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
K	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
N	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
S	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊

General turning

Cemented carbide and cermet inserts

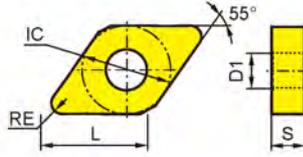
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide														Cermet Coated cermet	Cemented carbide														
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215			YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201				
NGF For finishing	DNEG150408-NGF	15.5	12.7	4.76	5.16	0.8									○	●																				
	DNEG150412-NGF	15.5	12.7	4.76	5.16	1.2									○	●																				
	DNEG150608-NGF	15.5	12.7	6.35	5.16	0.8																														
	DNEG150612-NGF	15.5	12.7	6.35	5.16	1.2										○	●																			
PM For semi-finishing	DNMG110404-PM	11.6	9.525	4.76	3.81	0.4											●	○																	●	
	DNMG110408-PM	11.6	9.525	4.76	3.81	0.8												●	○																★	
	DNMG110412-PM	11.6	9.525	4.76	3.81	1.2																														
	DNMG150404-PM	15.5	12.7	4.76	5.16	0.4												●	○																	
	DNMG150408-PM	15.5	12.7	4.76	5.16	0.8													●	○															★	
	DNMG150412-PM	15.5	12.7	4.76	5.16	1.2																														○
	DNMG150416-PM	15.5	12.7	4.76	5.16	1.6																														
	DNMG150604-PM	15.5	12.7	6.35	5.16	0.4													●	○																★
	DNMG150608-PM	15.5	12.7	6.35	5.16	0.8														○	★														★	
	DNMG150612-PM	15.5	12.7	6.35	5.16	1.2																														★
DNMG150616-PM	15.5	12.7	6.35	5.16	1.6																														○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

DDJNR/L KAPR:93° Page A137	PDJNR/L KAPR:93° A144	PDPNN KAPR:62°30' A145	MDJNR/L KAPR:93° A156	MDPNN KAPR:62°30' A157	PDPNR/L KAPR:62°30' A195	PDUNR/L KAPR:93° A196
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DN (Negative inserts)



😊 Good working condition 😬 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	😊😊😊😊😊😊😊😊😊😊😊😊
	M Stainless steel	😊😊😊😊😊😊😊😊😊😊😊😊
	K Cast iron	😊😊😊😊😊😊😊😊😊😊😊😊
	N Non-ferrous metal	😊😊😊😊😊😊😊😊😊😊😊😊
	S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊😊😊😊😊

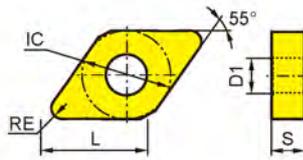
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																								
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201	
XM For semi-finishing	DNMG110404-XM	11.6	9.525	4.76	3.18	0.4	★	★																							
	DNMG110408-XM	11.6	9.525	4.76	3.18	0.8	★	★																							
	DNMG110412-XM	11.6	9.525	4.76	3.18	1.2	★	★																							
	DNMG150404-XM	15.5	12.7	4.76	5.16	0.4	★	★																							
	DNMG150408-XM	15.5	12.7	4.76	5.16	0.8	★	★																							
	DNMG150412-XM	15.5	12.7	4.76	5.16	1.2	★	★																							
	DNMG150604-XM	15.5	12.7	6.35	5.16	0.4	★	★																							
	DNMG150608-XM	15.5	12.7	6.35	5.16	0.8	★	★																							
	DNMG150612-XM	15.5	12.7	6.35	5.16	1.2	★	★																							
	DNMG150616-XM	15.5	12.7	6.35	5.16	1.6	★	★																							
DM For semi-finishing	DNMG110404-DM	11.6	9.525	4.76	3.81	0.4	●	○																							
	DNMG110408-DM	11.6	9.525	4.76	3.81	0.8	★	★													●										
	DNMG110412-DM	11.6	9.525	4.76	3.81	1.2	○	○																							
	DNMG150404-DM	15.5	12.7	4.76	5.16	0.4	○	★																	○						
	DNMG150408-DM	15.5	12.7	4.76	5.16	0.8	★	★																●							
	DNMG150412-DM	15.5	12.7	4.76	5.16	1.2	★	★																							
	DNMG150416-DM	15.5	12.7	4.76	5.16	1.6																		○							
	DNMG150604-DM	15.5	12.7	6.35	5.16	0.4	★	★															●			●					
	DNMG150608-DM	15.5	12.7	6.35	5.16	0.8	★	★																●							
	DNMG150612-DM	15.5	12.7	6.35	5.16	1.2	●	★																							
DNMG150616-DM	15.5	12.7	6.35	5.16	1.6																		○								

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool



DN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊				
M		😊😊😊😊😊😊😊😊😊😊			
K			😊😊😊😊😊😊😊😊😊😊		
N				😊😊😊😊😊😊😊😊😊😊	
S					😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide													Cermet	Cemented carbide									
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153			YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C
 Light-load roughing	DNMM150608-LR	15.5	12.7	6.35	5.16	0.8					★																			
	DNMM150612-LR	15.5	12.7	6.35	5.16	1.2					★																			
	DNMM150616-LR	15.5	12.7	6.35	5.16	1.6					★																			
 Light-load roughing	DNMG150408-DR	15.5	12.7	4.76	5.16	0.8				○																				
	DNMG150412-DR	15.5	12.7	4.76	5.16	1.2				○																				
	DNMG150416-DR	15.5	12.7	4.76	5.16	1.6				○																				
	DNMG150608-DR	15.5	12.7	6.35	5.16	0.8				★	○													●	●					
	DNMG150612-DR	15.5	12.7	6.35	5.16	1.2				○	★													○	●					
	DNMG150616-DR	15.5	12.7	6.35	5.16	1.6																			○					
 For roughing	DNMM150608-DR	15.5	12.7	6.35	5.16	0.8				○																				
	DNMM150612-DR	15.5	12.7	6.35	5.16	1.2				○																				
	DNMM150616-DR	15.5	12.7	6.35	5.16	1.6				○																				
 For roughing	DNMG150608-ER	15.5	12.7	6.35	5.16	0.8																★								
	DNMG150612-ER	15.5	12.7	6.35	5.16	1.2																	★							

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A137

A144

A145

A156

A157

A195

A196

Insert code key

A48-A49

Grade selection reference

A21/A38-A45

Chipbreaker selection reference

A24-A37

Recommended cutting parameters

A222-A224

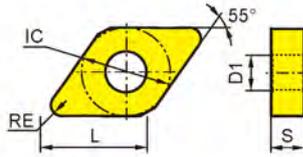


TURNING General Turning Inserts

Cemented carbide and cermet inserts

DN (Negative inserts)

😊 Good working condition 🤔 Normal working condition 😞 Bad working condition



Workpiece material	Good working condition																		Normal working condition																		Bad working condition																	
	P	M	K	N	S	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152C	YNG151	YNG151C	YD101	YD201																									
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊																			
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊																			
K Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊																			
N Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊																			
S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊																			

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																		Cermet	Coated cermet	Cemented carbide												
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052				YBD102	YBD152C	YNG151	YNG151C	YD101	YD201						
For roughing	DNMM150608-ER	15.5	12.7	6.35	5.16	0.8																★																	
	DNMM150612-ER	15.5	12.7	6.35	5.16	1.2																	★																
For roughing	DNMG150608-SNR	15.5	12.7	6.35	5.16	0.8					○ ●		○										★																
	DNMG150612-SNR	15.5	12.7	6.35	5.16	1.2					○ ●		○											★															
For heavy machining	DNMM150608-HDR	15.5	12.7	6.35	5.16	0.8					○																												
	DNMM150612-HDR	15.5	12.7	6.35	5.16	1.2					○																												
	DNMM150616-HDR	15.5	12.7	6.35	5.16	1.6					○																												
	DNMG150404-TC	15.5	12.7	4.76	5.16	0.4																															★		
	DNMG150408-TC	15.5	12.7	4.76	5.16	0.8																															★		
	DNMG150412-TC	15.5	12.7	4.76	5.16	1.2																																★	
	DNMG150608-TC	15.5	12.7	6.35	5.16	0.8																																★	
	DNMG150612-TC	15.5	12.7	6.35	5.16	1.2																																★	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A137



A144



A145



A156



A157

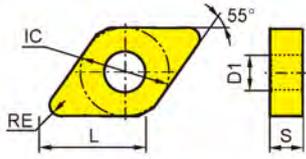


A195



A196

DN (Negative inserts)



😊 Good working condition 🟡 Normal working condition 🟠 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
M	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
K	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
N	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
S	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide														Cermet Coated cermet	Cemented carbide												
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215			YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201		
Without chipbreaker 	DNMA110416	11.6	9.525	4.76	3.81	1.6																											○	
	DNMA110424	11.6	9.525	4.76	3.81	2.4																											○	
	DNMA150404	15.5	12.7	4.76	5.16	0.4																											○	
	DNMA150408	15.5	12.7	4.76	5.16	0.8																										★	★	○
	DNMA150604	15.5	12.7	6.35	5.16	0.4																										○	○	○
	DNMA150608	15.5	12.7	6.35	5.16	0.8																										○	★	★
	DNMA150612	15.5	12.7	6.35	5.16	1.2																										○	○	○
	DNMA150616	15.5	12.7	6.35	5.16	1.6																										○	○	

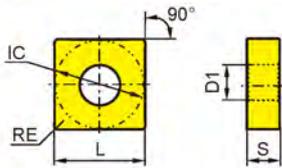
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool

DDJNR/L KAPR:93°	PDJNR/L KAPR:93°	PDPNN KAPR:62°30'	MDJNR/L KAPR:93°	MDPNN KAPR:62°30'	PDPNR/L KAPR:62°30'	PDUNR/L KAPR:93°
Page A137	A144	A145	A156	A157	A195	A196

Insert code key → A48-A49 Grade selection reference → A21/A38-A45 Chipbreaker selection reference → A24-A37 Recommended cutting parameters → A222-A224

SN (Negative inserts)



☺ Good working condition 😐 Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy												
	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺☺☺

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide												Cermet Coated cermet	Cermet Cermet															
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YBG212	YBG302			YBH053	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201			
 For semi-finishing	SNMG090304-DM	9.525	9.525	3.18	3.81	0.4		☺	☺																										
	SNMG090308-DM	9.525	9.525	3.18	3.81	0.8		☺	☺																										
	SNMG120404-DM	12.7	12.7	4.76	5.16	0.4		★	☺																										
	SNMG120408-DM	12.7	12.7	4.76	5.16	0.8			☺													☺					☺								
	SNMG120412-DM	12.7	12.7	4.76	5.16	1.2		★	★																										
	SNMG120416-DM	12.7	12.7	4.76	5.16	1.6			☺																										
	SNMG150608-DM	15.875	15.875	6.35	6.35	0.8		☺	☺													●													
	SNMG150612-DM	15.875	15.875	6.35	6.35	1.2		●	★																										
	SNMG150616-DM	15.875	15.875	6.35	6.35	1.6			☺																										
	SNMG190612-DM	19.05	19.05	6.35	7.94	1.2		☺	☺																										
SNMG190616-DM	19.05	19.05	6.35	7.94	1.6			☺																											
 For semi-finishing	SNMG120404-EM	12.7	12.7	4.76	5.16	0.4								●	★				★	★															
	SNMG120408-EM	12.7	12.7	4.76	5.16	0.8								●	★				★	★															
	SNMG120412-EM	12.7	12.7	4.76	5.16	1.2								●	★				★	★															
	SNMG120416-EM	12.7	12.7	4.76	5.16	1.6								☺	★				☺	★															
	SNMG150612-EM	15.875	15.875	6.35	6.35	1.2								●	★				☺	★															
	SNMG150616-EM	15.875	15.875	6.35	6.35	1.6								☺	★	★			☺	★															

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Cemented carbide and cermet inserts

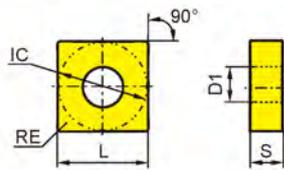
Applicable tool



Insert code key: **A48-A49** Grade selection reference: **A21/A38-A45** Chipbreaker selection reference: **A24-A37** Recommended cutting parameters: **A222-A224**

Cemented carbide and cermet inserts

SN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Steel							Stainless steel				Cast iron				Non-ferrous metal			Heat resistant alloy, Ti alloy	
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide															Cermet	Coated cermet	Cemented carbide							
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YB9315	YBG302	YBH053	YBM153	YBM215	YBM251				YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C
For semi-finishing	SNMG120404-EG	12.7	12.7	4.76	5.16	0.4										★															
	SNMG120408-EG	12.7	12.7	4.76	5.16	0.8										★															
	SNMG120412-EG	12.7	12.7	4.76	5.16	1.2										★															
For semi-finishing	SNMG120408-NM	12.7	12.7	4.76	5.16	0.8						● ★										○									
	SNMG120412-NM	12.7	12.7	4.76	5.16	1.2						○ ★											○								
Light-load roughing	SNMM120408-LR	12.9	12.7	4.76	5.16	0.8										★															
	SNMM120412-LR	12.9	12.7	4.76	5.16	1.2										★															
	SNMM120416-LR	12.9	12.7	4.76	5.16	1.6										★															
	SNMM150612-LR	15.875	15.875	6.35	6.35	1.2										★															
	SNMM150616-LR	15.875	15.875	6.35	6.35	1.6										★															
	SNMM190612-LR	19.3	19.05	6.35	7.94	1.2										★															
	SNMM190616-LR	19.3	19.05	6.35	7.94	1.6										★															
	SNMM190624-LR	19.3	19.05	6.35	7.94	2.4										★															
SNMM250924-LR	25.79	25.4	9.525	9.12	2.4										★																

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool



Page A138



A146



A147



A148



A149



A158



A159



Page A160



A161

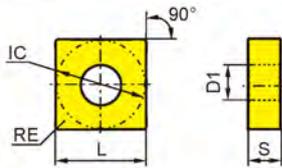


A197



Cemented carbide and cermet inserts

SN (Negative inserts)



😊 Good working condition 😐 Normal working condition ☹️ Bad working condition

Workpiece material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet YNG151	Cermet YNG151C	Cemented carbide YD101	Cemented carbide YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																																	
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet YNG151	Cermet YNG151C	Cemented carbide YD101	Cemented carbide YD201										
DR  For roughing	SNMM120408-DR	12.7	12.7	4.76	5.16	0.8			😊																															
	SNMM120412-DR	12.7	12.7	4.76	5.16	1.2			😊	😊																														
	SNMM120416-DR	12.7	12.7	4.76	5.16	1.6			😊	😊																														
	SNMM150608-DR	15.875	15.875	6.35	6.35	0.8				😊																														
	SNMM150612-DR	15.875	15.875	6.35	6.35	1.2					😊																													
	SNMM150616-DR	15.875	15.875	6.35	6.35	1.6						😊																												
	SNMM190608-DR	19.05	19.05	6.35	7.94	0.8					😊																													
	SNMM190612-DR	19.05	19.05	6.35	7.94	1.2						😊																												
	SNMM190616-DR	19.05	19.05	6.35	7.94	1.6							😊	★																										
	SNMM190624-DR	19.05	19.05	6.35	7.94	2.4									★	😊																								
	SNMM250724-DR	25.4	25.4	7.94	9.12	2.4											😊																							
SNMM250924-DR	25.4	25.4	9.525	9.12	2.4												★																							
ER  For roughing	SNMG120408-ER	12.7	12.7	4.76	5.16	0.8																																		
	SNMG120412-ER	12.7	12.7	4.76	5.16	1.2																																		
	SNMG150608-ER	15.875	15.875	6.35	6.35	0.8																																		
	SNMG150612-ER	15.875	15.875	6.35	6.35	1.2																																		
	SNMG190612-ER	19.05	19.05	6.35	7.94	1.2																																		
	SNMG190616-ER	19.05	19.05	6.35	7.94	1.6																																		

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A138



A146



A147



A148



A149



A158



A159



Page A160



A161



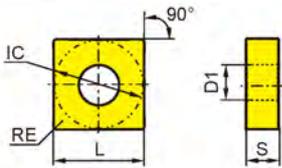
A197



General Turning Inserts

Cemented carbide and cermet inserts

SN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Working Condition									
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron										
N Non-ferrous metal										
S Heat resistant alloy, Ti alloy										

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide											Cermet	Coated cermet	Cemented carbide										
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152C	YNG151	YNG151C	YD101	YD201
 HPR For heavy machining	SNMM190616-HPR	19.5	19.05	6.35	7.94	1.6																								
	SNMM250924-HPR	25.4	25.4	9.525	9.12	2.4						★	○																	
 TC	SNMG120408-TC	12.7	12.7	4.76	5.16	0.8																								
	SNMG120412-TC	12.7	12.7	4.76	5.16	1.2																								
All round 	SNMG120404	12.7	12.7	4.76	5.16	0.4																								
	SNMG120408	12.7	12.7	4.76	5.16	0.8														●										
	SNMG120412	12.7	12.7	4.76	5.16	1.2																								
	SNMG120416	12.7	12.7	4.76	5.16	1.6																								
	SNMG150608	15.875	15.875	6.35	6.35	0.8																								
	SNMG150612	15.875	15.875	6.35	6.35	1.2																								
	SNMG190612	19.05	19.05	6.35	7.94	1.2																								
	SNMG190616	19.05	19.05	6.35	7.94	1.6																								
	SNMG250724	25.4	25.4	7.94	9.12	2.4																								
	SNMG250924	25.4	25.4	9.525	9.12	2.4																								

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool

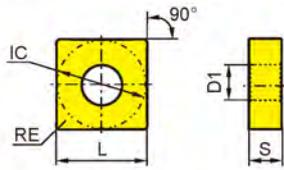




Cemented carbide and cermet inserts

SN (Negative inserts)

 Good working condition
  Normal working condition
  Bad working condition



Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	☺ ☹ ☺ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹				
M Stainless steel		☺ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹			
K Cast iron			☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹		
N Non-ferrous metal				☺ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹	
S Heat resistant alloy, Ti alloy					☺ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹ ☹

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide											Cermet	Cermet	Cemented												
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet Coated cermet	Cemented carbide				
Without chipbreaker 	SNMA090304	9.525	9.525	3.18	3.81	0.4																										
	SNMA090308	9.525	9.525	3.18	3.81	0.8																		☺	☺							
	SNMA120404	12.7	12.7	4.76	5.16	0.4																			☺							
	SNMA120408	12.7	12.7	4.76	5.16	0.8																		☺	★	★						●
	SNMA120416	12.7	12.7	4.76	5.16	1.6																		☺	☺	★						
	SNMA150608	15.875	15.875	6.35	6.35	0.8																			☺							
	SNMA150612	15.875	15.875	6.35	6.35	1.2																				★						
	SNMA190612	19.05	19.05	6.35	7.94	1.2																		☺	☺	★						
	SNMA190616	19.05	19.05	6.35	7.94	1.6																				★	★					

★ Recommended grade (always stock available)
 ● Available grade (always stock available)
 ○ Make-to-order

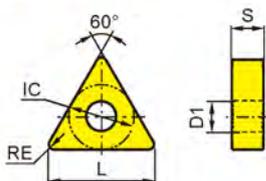




General Turning Inserts

Cemented carbide and cermet inserts

TN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cermet	
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron																					😊	😊	😊
N Non-ferrous metal																					😊	😊	😊
S Heat resistant alloy, Ti alloy	😊	😊																			😊	😊	😊

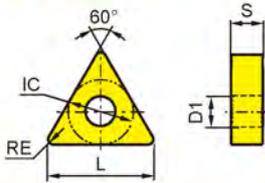
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																							
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cermet		
 For finishing	TNMG160404-XF	16.5	9.525	4.76	3.81	0.4	★	★																						
	TNMG160408-XF	16.5	9.525	4.76	3.81	0.8	★	★																						
 For finishing	TNMG160404-DF	16.5	9.525	4.76	3.81	0.4			★	★																●				
	TNMG160408-DF	16.5	9.525	4.76	3.81	0.8			★	★																●				
	TNMG160412-DF	16.5	9.525	4.76	3.81	1.2			○	○																				
	TNMG220408-DF	22	12.7	4.76	5.16	0.8			★	○																				
	TNMG220412-DF	22	12.7	4.76	5.16	1.2			○																					
 For finishing	TNMG110304-SF	11	6.35	3.18	2.26	0.4																			○	★				
	TNMG160404-SF	16.5	9.525	4.76	3.81	0.4																				○	★			
	TNMG160408-SF	16.5	9.525	4.76	3.81	0.8																				○	★			
	TNMG220408-SF	22	12.7	4.76	5.16	0.8																				○	★			
	TNMG220412-SF	22	12.7	4.76	5.16	1.2																				○	★			

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



TN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cermet	
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel			😊	😊	😊		😊	😊	😊	😊		😊	😊	😊	😊	😊		😊	😊	😊	😊	😊	😊
K Cast iron																		😊	😊	😊	😊	😊	😊
N Non-ferrous metal																					😊	😊	😊
S Heat resistant alloy, Ti alloy																					😊	😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide															Cermet	Cermet	Cermet					
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM253				YBS103	YBD052	YBD102	YBD152	YNG151
PM For semi-finishing	TNMG110304-PM	11	6.35	3.18	2.26	0.4	★	○																					
	TNMG110308-PM	11	6.35	3.18	2.26	0.8	★	○																					
	TNMG160404-PM	16.5	9.525	4.76	3.81	0.4	★	★																★	★				
	TNMG160408-PM	16.5	9.525	4.76	3.81	0.8	★	★	○															★	★				
	TNMG160412-PM	16.5	9.525	4.76	3.81	1.2	★	○																★	★				
	TNMG220408-PM	22	12.7	4.76	5.16	0.8	★	○																★	○				
	TNMG220412-PM	22	12.7	4.76	5.16	1.2	★	○																	○	○			
	TNMG220416-PM	22	12.7	4.76	5.16	1.6			○																		○		
XM For semi-finishing	TNMG160404-XM	16.5	9.525	4.76	3.81	0.4	★	★																					
	TNMG160408-XM	16.5	9.525	4.76	3.81	0.8	★	★																					
	TNMG160412-XM	16.5	9.525	4.76	3.81	1.2	★	★																					
	TNMG160416-XM	16.5	9.525	4.76	3.81	1.6	★	★																					
	TNMG220408-XM	22	12.7	4.76	5.16	0.8	★	★																					
	TNMG220412-XM	22	12.7	4.76	5.16	1.2	★	★																					
	TNMG220416-XM	22	12.7	4.76	5.16	1.6	★	★																					

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A139



A150



A151



A152



A162



A163



A164



Page A165

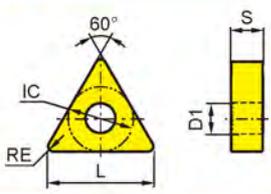


A198

Cemented carbide and cermet inserts

General turning
Cemented carbide and cermet inserts

TN (Negative inserts)



😊 Good working condition 😐 Normal working condition ☹️ Bad working condition

Workpiece material	P Steel	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
	M Stainless steel	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
	K Cast iron	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
	N Non-ferrous metal	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
	S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide											Cermet Coated cermet	Cemented carbide																	
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YB9315	YBG302			YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152								
EH For semi-finishing	TNMG160408-EH	16.5	9.525	4.76	3.81	0.8																														
LR Light-load roughing	TNMM160408-LR	16.5	9.525	4.76	3.81	0.8										★																				
	TNMM160412-LR	16.5	9.525	4.76	3.81	1.2										★																				
	TNMM220408-LR	22	12.7	4.76	5.16	0.8											★																			
	TNMM220412-LR	22	12.7	4.76	5.16	1.2											★																			
	TNMM220416-LR	22	12.7	4.76	5.16	1.6											★																			
DR Light-load roughing	TNMG160408-DR	16.5	9.525	4.76	3.81	0.8	○	○																○	○											
	TNMG160412-DR	16.5	9.525	4.76	3.81	1.2		○	○																●	●										
	TNMG220408-DR	22	12.7	4.76	5.16	0.8			○															○												
	TNMG220412-DR	22	12.7	4.76	5.16	1.2				○																○										
	TNMG220416-DR	22	12.7	4.76	5.16	1.6				○															○											
	TNMG270608-DR	27.5	15.875	6.35	6.35	0.8					○																									
	TNMG270612-DR	27.5	15.875	6.35	6.35	1.2					○																									
	TNMG270616-DR	27.5	15.875	6.35	6.35	1.6					○																									

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

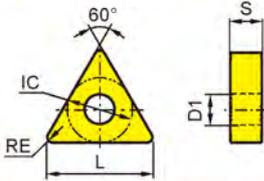


Page A139 A150 A151 A152 A162 A163 A164



Page A165 A198

TN (Negative inserts)



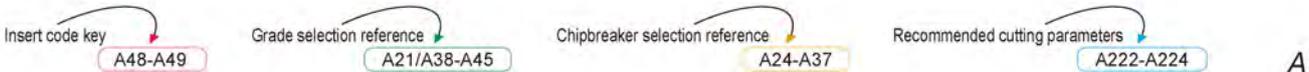
😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
M	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
K	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
N	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊
S	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide												Cermet	Cermet coated carbide	Cemented carbide											
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053				YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101
DR For roughing	TNMM160408-DR	16.5	9.525	4.76	3.81	0.8																										
	TNMM160412-DR	16.5	9.525	4.76	3.81	1.2																										
	TNMM220408-DR	22	12.7	4.76	5.16	0.8																										
	TNMM220412-DR	22	12.7	4.76	5.16	1.2																										
	TNMM220416-DR	22	12.7	4.76	5.16	1.6																										
	TNMM270612-DR	27.5	15.875	6.35	5.16	1.2																										
	TNMM270616-DR	27.5	15.875	6.35	5.16	1.6																										
ER For roughing	TNMG160408-ER	16.5	9.525	4.76	3.81	0.8																										
	TNMG160412-ER	16.5	9.525	4.76	3.81	1.2																										
	TNMG220408-ER	22	12.7	4.76	5.16	0.8																										
	TNMG220412-ER	22	12.7	4.76	5.16	1.2																										
SNR For roughing	TNMG160408-SNR	16.5	9.525	4.76	3.81	0.8								○	●		○							★								

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

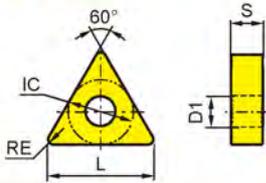
Applicable tool





Cemented carbide and cermet inserts

TN (Negative inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
M		😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
K			😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
N				😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
S					😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																						
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152C	Cermet	Cermet	Cemented
	TNMM160408-HDR	16.5	9.525	4.76	3.81	0.8						😊																	
	TNMM160412-HDR	16.5	9.525	4.76	3.81	1.2						😊																	
	TNMM220408-HDR	22	12.7	4.76	5.16	0.8						😊																	
	TNMM220412-HDR	22	12.7	4.76	5.16	1.2						😊																	
	TNMM220416-HDR	22	12.7	4.76	5.16	1.6						😊																	
	TNMM270612-HDR	27.5	15.875	6.35	6.35	1.2						😊																	
	TNMM270616-HDR	27.5	15.875	6.35	6.35	1.6						😊																	
	TNMM270624-HDR	27.5	15.875	6.35	6.35	2.4						😊																	
	TNMG160404-TC	16.5	9.525	4.76	3.81	0.4																		★					
	TNMG160408-TC	16.5	9.525	4.76	3.81	0.8																		★					
	TNMG160412-TC	16.5	9.525	4.76	3.81	1.2																		★					
	TNMG220412-TC	22	12.7	4.76	5.16	1.2																			★				
	TNMG220416-TC	22	12.7	4.76	5.16	1.6																			★				
	TNMA160404	16.5	9.525	4.76	3.81	0.4																	○	★	★				
	TNMA160408	16.5	9.525	4.76	3.81	0.8																	★	★	★			○	
	TNMA160412	16.5	9.525	4.76	3.81	1.2																	★	○	○				
	TNMA160416	16.5	9.525	4.76	3.81	1.6																		○	○	○			
	TNMA220404	22	12.7	4.76	5.16	0.4																			○	○	○		
	TNMA220408	22	12.7	4.76	5.16	0.8																			○	○	○		
	TNMA270616	27.5	15.875	6.35	6.35	1.6																				○			

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A139



A150



A151



A152



A162



A163



A164



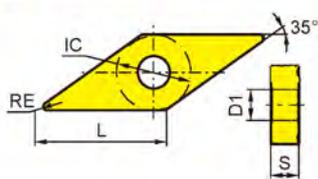
Page A165



A198

Cemented carbide and cermet inserts

VN (Negative inserts)



😊 Good working condition 😐 Normal working condition ☹️ Bad working condition

P Steel
M Stainless steel
K Cast iron
N Non-ferrous metal
S Heat resistant alloy, Ti alloy

Material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201
Steel (P)	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
Stainless steel (M)			😊	😊	😊			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
Cast iron (K)																		😊	😊	😊	😊	😊	😊	😊
Non-ferrous metal (N)																								
Heat resistant alloy, Ti alloy (S)																								

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide													Cermet	Coated cermet	Cemented carbide																	
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153				YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152										
For finishing	VNEG160408-NGF	16.6	9.525	4.76	3.81	0.8					○	●			○																								
	VNEG160412-NGF	16.6	9.525	4.76	3.81	1.2					○	●			○																								
For finishing	VNMG160404-SF	16.6	9.525	4.76	3.81	0.4					○										○		★																
	VNMG160408-SF	16.6	9.525	4.76	3.81	0.8					○											○		★															
For semi-finishing	VNMG160404-PM	16.6	9.525	4.76	3.81	0.4	★	○														○																	
	VNMG160408-PM	16.6	9.525	4.76	3.81	0.8	★	○															★	★															
	VNMG160412-PM	16.6	9.525	4.76	3.81	1.2					○																												
For semi-finishing	VNMG160404-XM	16.6	9.525	4.76	3.81	0.4	★	★																															
	VNMG160408-XM	16.6	9.525	4.76	3.81	0.8	★	★																															
	VNMG160412-XM	16.6	9.525	4.76	3.81	1.2	★	★																															
For semi-finishing	VNMG160408-DM	16.6	9.525	4.76	3.81	0.8					★	★											○																
	VNMG160412-DM	16.6	9.525	4.76	3.81	1.2					○	○												○															

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool

DVVNN
KAPR:72°30'



DVJNR/L
KAPR:93°



MVVNN
KAPR:72°30'



MVJNR/L
KAPR:93°



Page A140

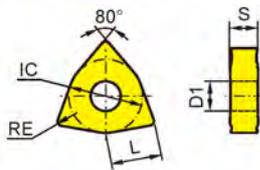
A140

A166

A167

Cemented carbide and cermet inserts

WN (Negative inserts)



😊 Good working condition 😊 Normal working condition 😞 Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
M	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
K	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
N	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
S	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																Cermet	Coated cermet	Cemented carbide																					
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253				YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201													
XF For finishing	WNMG060404-XF	6.5	9.525	4.76	3.81	0.4	★	★																																						
	WNMG060408-XF	6.5	9.525	4.76	3.81	0.8	★	★																																						
	WNMG080404-XF	8.7	12.7	4.76	5.16	0.4	★	★																																						
	WNMG080408-XF	8.7	12.7	4.76	5.16	0.8	★	★																																						
	WNMG080412-XF	8.7	12.7	4.76	5.16	1.2	★	★																																						
DF For finishing	WNMG06T304-DF	6.5	9.525	3.97	3.81	0.4						★																																		
	WNMG06T308-DF	6.5	9.525	3.97	3.81	0.8						★	★																																	
	WNMG06T312-DF	6.5	9.525	3.97	3.81	1.2						★	★																																	
	WNMG060404-DF	6.5	9.525	4.76	3.81	0.4						★	★																																	
	WNMG060408-DF	6.5	9.525	4.76	3.81	0.8						★	★																																	
	WNMG060412-DF	6.5	9.525	4.76	3.81	1.2						★	○																																	
	WNMG080404-DF	8.7	12.7	4.76	5.16	0.4						★	○																																	
	WNMG080408-DF	8.7	12.7	4.76	5.16	0.8						★	★																																	
	WNMG080412-DF	8.7	12.7	4.76	5.16	1.2						○	○																																	
SF For finishing	WNMG06T304-SF	6.5	9.525	3.97	3.81	0.4																																								
	WNMG06T308-SF	6.5	9.525	3.97	3.81	0.8																																								
	WNMG06T312-SF	6.5	9.525	3.97	3.81	1.2																																								
	WNMG060404-SF	6.5	9.525	4.76	3.81	0.4																																								
	WNMG060408-SF	6.5	9.525	4.76	3.81	0.8																																								
	WNMG080404-SF	8.7	12.7	4.76	5.16	0.4																																								
	WNMG080408-SF	8.7	12.7	4.76	5.16	0.8																																								
	WNMG080412-SF	8.7	12.7	4.76	5.16	1.2																																								

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



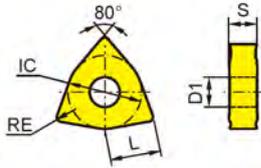
Page A141 A153 A168 A199



General Turning Inserts

Cemented carbide and cermet inserts

WN (Negative inserts)



😊 Good working condition 😊 Normal working condition 😞 Bad working condition

Workpiece material
P Steel
M Stainless steel
K Cast iron
N Non-ferrous metal
S Heat resistant alloy, Ti alloy

P	Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M	Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K	Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
N	Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
S	Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

General turning

Cemented carbide and cermet inserts

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide													Cermet Coated carbide	Cermet	Cemented carbide									
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153				YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C
PM  For semi-finishing	WNMG060408-PM	6.5	9.525	4.76	3.81	0.8			★	○																					
	WNMG060412-PM	6.5	9.525	4.76	3.81	1.2			○	○																					
	WNMG080404-PM	8.7	12.7	4.76	5.16	0.4			○	○																					
	WNMG080408-PM	8.7	12.7	4.76	5.16	0.8			★	★																					
	WNMG080412-PM	8.7	12.7	4.76	5.16	1.2			★	★																					
	WNMG080416-PM	8.7	12.7	4.76	5.16	1.6				○																	○	○			
	WNMG080608-PM	8.7	12.7	6.35	5.16	0.8				○																					
XM  For semi-finishing	WNMG060404-XM	6.5	9.525	4.76	3.81	0.4	★	★																							
	WNMG060408-XM	6.5	9.525	4.76	3.81	0.8	★	★																							
	WNMG060412-XM	6.5	9.525	4.76	3.81	1.2	★	★																							
	WNMG080404-XM	8.7	12.7	4.76	5.16	0.4	★	★																							
	WNMG080408-XM	8.7	12.7	4.76	5.16	0.8	★	★																							
	WNMG080412-XM	8.7	12.7	4.76	5.16	1.2	★	★																							
	WNMG080416-XM	8.7	12.7	4.76	5.16	1.6	★	★																							

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



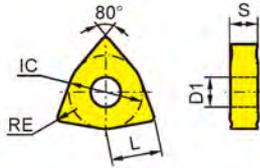
Page A141 A153 A168 A199

General Turning Inserts

TURNING A

Cemented carbide and cermet inserts

WN (Negative inserts)



☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Workpiece material

P Steel

M Stainless steel

K Cast iron

N Non-ferrous metal

S Heat resistant alloy, Ti alloy

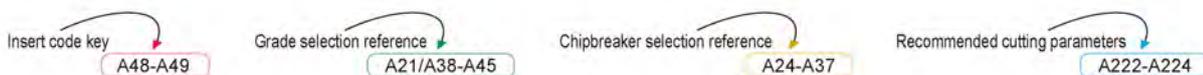
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																					
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315	YBG302	YBH053	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide
DM For semi-finishing	WNMG06T304-DM	6.5	9.525	3.97	3.81	0.4							○															
	WNMG06T308-DM	6.5	9.525	3.97	3.81	0.8							○															
	WNMG06T312-DM	6.5	9.525	3.97	3.81	1.2							○															
	WNMG060408-DM	6.5	9.525	4.76	3.81	0.8		★	★													●						
	WNMG060412-DM	6.5	9.525	4.76	3.81	1.2							○															
	WNMG080404-DM	8.7	12.7	4.76	5.16	0.4		★	★				○									○						
	WNMG080408-DM	8.7	12.7	4.76	5.16	0.8		★	★													○						
	WNMG080412-DM	8.7	12.7	4.76	5.16	1.2		★	★													○						
	WNMG080416-DM	8.7	12.7	4.76	5.16	1.6							○															
EM For semi-finishing	WNMG06T304-EM	6.5	9.525	3.97	3.81	0.4							○	★						○		★						
	WNMG06T308-EM	6.5	9.525	3.97	3.81	0.8							○	★							○		★					
	WNMG06T312-EM	6.5	9.525	3.97	3.81	1.2							○	★							○		★					
	WNMG060404-EM	6.5	9.525	4.76	3.81	0.4							○	★							○		★					
	WNMG060408-EM	6.5	9.525	4.76	3.81	0.8							●	★							○		★					
	WNMG080404-EM	8.7	12.7	4.76	5.16	0.4							●	★	★					★		★		★				
	WNMG080408-EM	8.7	12.7	4.76	5.16	0.8							●	★	★					★		★		★				
	WNMG080412-EM	8.7	12.7	4.76	5.16	1.2							●	★	★					★		★		★				
EG For semi-finishing	WNMG080404-EG	8.7	12.7	4.76	5.16	0.4																						
	WNMG080408-EG	8.7	12.7	4.76	5.16	0.8																						
	WNMG080412-EG	8.7	12.7	4.76	5.16	1.2																						

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



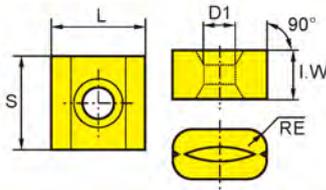
Page A141 A153 A168 A199



General turning
Cemented carbide and cermet inserts

Cemented carbide and cermet inserts

LN (Negative inserts)



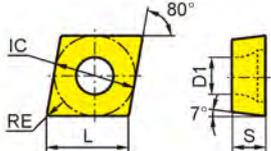
😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Working conditions																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel							😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron																		😊	😊
N Non-ferrous metal																			😊
S Heat resistant alloy, Ti alloy							😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide														Cermet	Coated cermet	Cemented carbide							
		L	I.W	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215				YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151
	LNUX191940-RF	19.05	10.0	19.05	6.35	4.0	★																							
	LNUX301940-RF	30.0	12.0	19.05	6.35	4.0	★																							
	LNUX191940-RH	19.05	10.0	19.05	6.35	4.0	★																							
	LNUX301940-RH	30.0	12.0	19.05	6.35	4.0	★																							

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

CC (Positive inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
	M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
	K Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
	N Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
	S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide												Cermet	Cermet coated cemented carbide	Cemented carbide														
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053				YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201		
SF For extra finishing	CCGT060202-SF	6.4	6.35	2.38	2.8	0.2																													
	CCGT060204-SF	6.4	6.35	2.38	2.8	0.4																													
	CCGT09T304-SF	9.7	9.525	3.97	4.4	0.4																													
XF For finishing	CCMT060202-XF	6.4	6.35	2.38	2.8	0.2	★	★																											
	CCMT060204-XF	6.4	6.35	2.38	2.8	0.4	★	★																											
	CCMT060208-XF	6.4	6.35	2.38	2.8	0.8	★	★																											
	CCMT09T302-XF	9.7	9.525	3.97	4.4	0.2	★	★																											
	CCMT09T304-XF	9.7	9.525	3.97	4.4	0.4	★	★																											
	CCMT09T308-XF	9.7	9.525	3.97	4.4	0.8	★	★																											
HF For finishing	CCMT060202-HF	6.4	6.35	2.38	2.8	0.2			★	★		●																							
	CCMT060204-HF	6.4	6.35	2.38	2.8	0.4			★	○		●														●	●					●			
	CCMT060208-HF	6.4	6.35	2.38	2.8	0.8			★			●														●	●								
	CCMT09T302-HF	9.7	9.525	3.97	4.4	0.2					○		●														●	●						○	
	CCMT09T304-HF	9.7	9.525	3.97	4.4	0.4					★	★		●													●	●	●	○			○		
	CCMT09T308-HF	9.7	9.525	3.97	4.4	0.8					★	○		●													○	○	○	○	○	○	○	○	
	CCMT120404-HF	12.9	12.7	4.76	5.56	0.4					○	○															●	○							
	CCMT120408-HF	12.9	12.7	4.76	5.56	0.8					○																								

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Cemented carbide and cermet inserts

Applicable tool

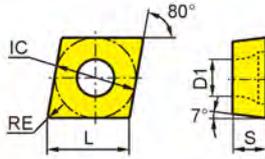


Insert code key → A48-A49
 Grade selection reference → A21/A38-A45
 Chipbreaker selection reference → A24-A37
 Recommended cutting parameters → A222-A224



Cemented carbide and cermet inserts

CC □ □ (Positive inserts)



Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
Good working condition	☺	☺	☺	☺	☺
Normal working condition	☹	☹	☹	☹	☹
Bad working condition	☹	☹	☹	☹	☹

☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide											Cermet	Cermet	Cermet												
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315				YB9320	YBH053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101
EF For finishing	CCMT060202-EF	6.4	6.35	2.38	2.8	0.2									○	●	★															
	CCMT060204-EF	6.4	6.35	2.38	2.8	0.4									○	●	★	★														
	CCMT09T302-EF	9.7	9.525	3.97	4.4	0.2									○	●	★															
	CCMT09T304-EF	9.7	9.525	3.97	4.4	0.4									○	●	★	★														
	CCMT09T308-EF	9.7	9.525	3.97	4.4	0.8									○	●	★															
	CCMT120404-EF	12.9	12.7	4.76	5.56	0.4									○	●	★															
	CCMT120408-EF	12.9	12.7	4.76	5.56	0.8									○	●	★															
AHF For finishing	CCMT060204-AHF	6.4	6.35	2.38	2.8	0.4																										
	CCMT060208-AHF	6.4	6.35	2.38	2.8	0.8																										
	CCMT09T304-AHF	9.7	9.525	3.97	4.4	0.4																										
	CCMT09T308-AHF	9.7	9.525	3.97	4.4	0.8																										
	CCMT120404-AHF	12.9	12.7	4.76	5.56	0.4																										
	CCMT120408-AHF	12.9	12.7	4.76	5.56	0.8																										
XM For semi-finishing	CCMT09T304-XM	9.7	9.525	3.97	4.4	0.4																										
	CCMT09T308-XM	9.7	9.525	3.97	4.4	0.8																										
	CCMT09T312-XM	9.7	9.525	3.97	4.4	1.2																										
	CCMT120404-XM	12.7	12.7	4.76	5.56	0.4																										
	CCMT120408-XM	12.7	12.7	4.76	5.56	0.8																										
	CCMT120412-XM	12.7	12.7	4.76	5.56	1.2																										

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool

SCACR/L
KAPR:90°



Page A196

SCLCR/L
KAPR:95°



A170

SCLCR/L
KAPR:95°



A200

SCFCR/L
KAPR:90°



A214

SCLCR/L
KAPR:95°

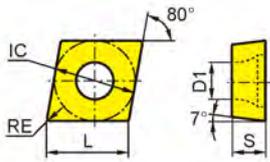


A215



Cemented carbide and cermet inserts

CC (Positive inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊				
M Stainless steel		😊😊😊😊😊😊😊😊😊😊			
K Cast iron			😊😊😊😊😊😊😊😊😊😊		
N Non-ferrous metal				😊😊😊😊😊😊😊😊😊😊	
S Heat resistant alloy, Ti alloy					😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide												Cermet	Cermet Coated cermet	Cemented carbide										
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053				YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C
LC For Al machining	CCGX060202-LC	6.4	6.35	2.38	2.8	0.2																									
	CCGX060204-LC	6.4	6.35	2.38	2.8	0.4																								★	
	CCGX09T302-LC	9.7	9.525	3.97	4.4	0.2																									★
	CCGX09T304-LC	9.7	9.525	3.97	4.4	0.4																									★
	CCGX09T308-LC	9.7	9.525	3.97	4.4	0.8																									★
	CCGX120404-LC	12.9	12.7	4.76	5.5	0.4																									★
	CCGX120408-LC	12.9	12.7	4.76	5.5	0.8																									★
LH For Al machining	CCGX060202-LH	6.4	6.35	2.38	2.8	0.2																								★	
	CCGX060204-LH	6.4	6.35	2.38	2.8	0.4																								★●	
	CCGX060208-LH	6.4	6.35	2.38	2.8	0.8																								★	
	CCGX09T302-LH	9.7	9.525	3.97	4.4	0.2																									★
	CCGX09T304-LH	9.7	9.525	3.97	4.4	0.4																									★●
	CCGX09T308-LH	9.7	9.525	3.97	4.4	0.8																									★
	CCGX120402-LH	12.9	12.7	4.76	5.56	0.2																									○
	CCGX120404-LH	12.9	12.7	4.76	5.56	0.4																									★
	CCGX120408-LH	12.9	12.7	4.76	5.56	0.8																									★
	CCGX120412-LH	12.9	12.7	4.76	5.56	1.2																									○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Cemented carbide and cermet inserts

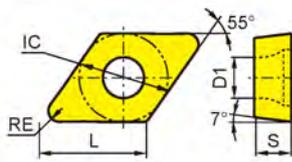
Applicable tool



Page A196 A170 A200 A214 A215

Insert code key A48-A49
 Grade selection reference A21/A38-A45
 Chipbreaker selection reference A24-A37
 Recommended cutting parameters A222-A224

DC (Positive inserts)



Good working condition Normal working condition Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P					
M					
K					
N					
S					

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide												Cermet	Coated cermet	Cemented carbide										
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053				YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C
SF For extra finishing	DCGT070202-SF	7.8	6.35	2.38	2.8	0.2																									
	DCGT070204-SF	7.8	6.35	2.38	2.8	0.4																									
	DCGT070208-SF	7.8	6.35	2.38	2.8	0.8																									
	DCGT11T302-SF	11.6	9.525	3.97	4.4	0.2																									
	DCGT11T304-SF	11.6	9.525	3.97	4.4	0.4																									
	DCGT11T308-SF	11.6	9.525	3.97	4.4	0.8																									
XF For finishing	DCMT070202-XF	7.8	6.35	2.38	2.8	0.2	★	★																							
	DCMT070204-XF	7.8	6.35	2.38	2.8	0.4	★	★																							
	DCMT070208-XF	7.8	6.35	2.38	2.8	0.8	★	★																							
	DCMT11T302-XF	11.6	9.525	3.97	4.4	0.2	★	★																							
	DCMT11T304-XF	11.6	9.525	3.97	4.4	0.4	★	★																							
	DCMT11T308-XF	11.6	9.525	3.97	4.4	0.8	★	★																							
HF For finishing	DCMT070202-HF	7.8	6.35	2.38	2.8	0.2	★	○																							
	DCMT070204-HF	7.8	6.35	2.38	2.8	0.4	★	★																	○	○				●	
	DCMT070208-HF	7.8	6.35	2.38	2.8	0.8			○																						
	DCMT11T302-HF	11.6	9.525	3.97	4.4	0.2	★	○																							
	DCMT11T304-HF	11.6	9.525	3.97	4.4	0.4	★	★																		○	○				○
	DCMT11T308-HF	11.6	9.525	3.97	4.4	0.8	★	○																							

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool

SDACR/L
KAPR:90°



Page A171

SDJCR/L
KAPR:93°



A172

SDNCR
KAPR:62°30'



A173

SDQCR/L
KAPR:107°30'



A201

SDUCR/L
KAPR:93°



A202

SDZCR/L
KAPR:93°



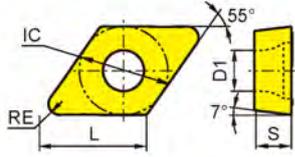
A203

General Turning Inserts

TURNING

Cemented carbide and cermet inserts

DC ☐☐ (Positive inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

P Steel
M Stainless steel
K Cast iron
N Non-ferrous metal
S Heat resistant alloy, Ti alloy

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide															Cermet	Cermet	Cermet	Cermet								
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315	YB9320	YBH053	YBM153	YBM215					YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cermet
EF For finishing	DCMT070202-EF	7.8	6.35	2.38	2.8	0.2									○	●	★			★	○												
	DCMT070204-EF	7.8	6.35	2.38	2.8	0.4									○	●	★			★	○												
	DCMT11T302-EF	11.6	9.525	3.97	4.4	0.2									○	●	★			★	○												
	DCMT11T304-EF	11.6	9.525	3.97	4.4	0.4									○	●	★	★			★	○											
	DCMT11T308-EF	11.6	9.525	3.97	4.4	0.8									○	●	★				○	○											
AHF For finishing	DCMT070204-AHF	7.8	6.35	2.38	2.8	0.4														★	★												
	DCMT070208-AHF	7.8	6.35	2.38	2.8	0.8														★	★												
	DCMT11T302-AHF	11.6	9.525	3.97	4.4	0.2														★	★												
	DCMT11T304-AHF	11.6	9.525	3.97	4.4	0.4														★	★			★									
	DCMT11T308-AHF	11.6	9.525	3.97	4.4	0.8														★	★			★									
XM For semi-finishing	DCMT070204-XM	7.8	6.35	2.38	2.8	0.4	★	★																									
	DCMT070208-XM	7.8	6.35	2.38	2.8	0.8	★	★																									
	DCMT11T304-XM	11.6	9.525	3.97	4.4	0.4	★	★																									
	DCMT11T308-XM	11.6	9.525	3.97	4.4	0.8	★	★																									
	DCMT11T312-XM	11.6	9.525	3.97	4.4	1.2	★	★																									

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Cemented carbide and cermet inserts

Applicable tool

SDACR/L
KAPR:90°



Page A171

SDJCR/L
KAPR:93°



A172

SDNCN
KAPR:62°30'



A173

SDQCR/L
KAPR:107°30'



A201

SDUCR/L
KAPR:93°



A202

SDZCR/L
KAPR:93°



A203

Insert code key

A48-A49

Grade selection reference

A21/A38-A45

Chipbreaker selection reference

A24-A37

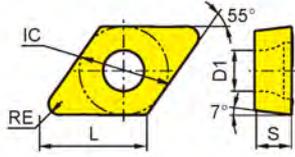
Recommended cutting parameters

A222-A224



Cemented carbide and cermet inserts

DC (Positive inserts)



😊 Good working condition 😐 Normal working condition ☹️ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
M Stainless steel	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
K Cast iron	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
N Non-ferrous metal	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊
S Heat resistant alloy, Ti alloy	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊	😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																							
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide	Cemented carbide
 For Al machining	DCGX070201-LC	7.8	6.35	2.38	2.8	0.1																								★
	DCGX070202-LC	7.8	6.35	2.38	2.8	0.2																								★
	DCGX070204-LC	7.8	6.35	2.38	2.8	0.4																								★
	DCGX11T304-LC	11.6	9.525	3.97	4.4	0.4																								★
	DCGX11T308-LC	11.6	9.525	3.97	4.4	0.8																								★
 For Al machining	DCGX070202-LH	7.8	6.35	2.38	2.8	0.2																							★	
	DCGX070204-LH	7.8	6.35	2.38	2.8	0.4																							★ ○	
	DCGX11T302-LH	11.6	9.525	3.97	4.4	0.2																							★ ○	
	DCGX11T304-LH	11.6	9.525	3.97	4.4	0.4																							★ ●	
	DCGX11T308-LH	11.6	9.525	3.97	4.4	0.8																							★	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning
Cemented carbide and cermet inserts

Applicable tool

SDACR/L
KAPR:90°



Page A171

SDJCR/L
KAPR:93°



A172

SDNCR
KAPR:62°30'



A173

SDQCR/L
KAPR:107°30'



A201

SDUCR/L
KAPR:93°



A202

SDZCR/L
KAPR:93°



A203

Insert code key
A48-A49

Grade selection reference
A21/A38-A45

Chipbreaker selection reference
A24-A37

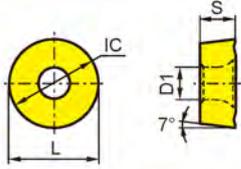
Recommended cutting parameters
A222-A224



TURNING General Turning Inserts

Cemented carbide and cermet inserts

RC □ □ (Positive inserts)

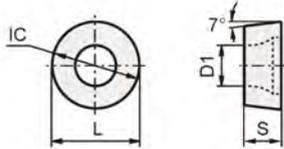


☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
YBC103	☺				
YBC203	☺				
YBC152	☺	☺			
YBC252	☺	☺			
YBC352	☺	☺			
YBG102	☺				
YBG105	☺	☺			
YBG202	☺	☺			
YBG205	☺	☺			
YBG212	☺	☺			
YBG302	☺	☺			
YBH053	☺	☺			
YBM153	☺	☺			
YBM215	☺	☺			
YBM251	☺	☺			
YBM253	☺	☺			
YBS103	☺	☺			
YBD052	☺	☺	☹		
YBD102	☺	☺	☹		
YBD152	☺	☺	☹		
YNG151	☺				☺
YNG151C	☺				☺
YD101				☺	
YD201				☺	

Inserts shape	Type	Dimensions(mm)				Coated cemented carbide										Cermet	Coated cermet	Cemented carbide												
		L	IC	S	D1	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212				YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C
	RCGT1204MO	12	12	4.76	4.4				○																					
	RCMT0803MO	8.0	8.0	3.18	3.36				○																					
	RCMT10T3MO	10	10	3.97	4.4				○																					
	RCMT1204MO	12	12	4.76	4.4				★														★	★	○					
	RCMT1606MO	16	16	6.35	5.5																			★						

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
YBC103	☺				
YBC203	☺				
YBC152	☺	☺			
YBC252	☺	☺			
YBC352	☺	☺			
YBG102	☺				
YBG105	☺	☺			
YBG202	☺	☺			
YBG205	☺	☺			
YBG212	☺	☺			
YBG302	☺	☺			
YBH053	☺	☺			
YBM153	☺	☺			
YBM215	☺	☺			
YBM251	☺	☺			
YBM253	☺	☺			
YBS103	☺	☺			
YBD052	☺	☺	☹		
YBD102	☺	☺	☹		
YBD152	☺	☺	☹		
YNG151	☺				☺
YNG151C	☺				☺
YD101				☺	
YD201				☺	

Inserts shape	Type	Dimensions(mm)				Coated cemented carbide										Cermet	Coated cermet	Cemented carbide													
		L	IC	S	D1	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212				YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101
 For Al machining	RCGX0803MO-LH	8.0	8.0	3.18	3.36																										★

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Applicable tool



Page A186

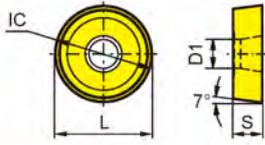


A187



Cemented carbide and cermet inserts

RC (Positive inserts)



😊 Good working condition ⚠ Normal working condition 🚫 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊	😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊 😊

Inserts shape	Type	Dimensions(mm)				Coated cemented carbide														Cermet	Cermet coated carbide	Cemented carbide														
		L	IC	S	D1	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215				YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201				
	RCMX0803MO	8.0	8.0	3.18	3.36																															
	RCMX1003MO	10	10	3.18	3.6																															
	RCMX1204MO	12	12	4.76	4.4																															
	RCMX1606MO	16	16	6.35	5.5																															
	RCMX2006MO	20	20	6.35	6.5							★ ○																	★							
	RCMX2507MO	25	25	7.94	7.2							★ ○																	○							
	RCMX3209MO	32	32	9.52	9.5																										●					

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning

Cemented carbide and cermet inserts

Insert code key → **A48-A49**

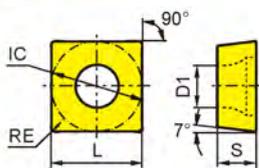
Grade selection reference → **A21/A38-A45**

Chipbreaker selection reference → **A24-A37**

Recommended cutting parameters → **A222-A224**

Cemented carbide and cermet inserts

SC (Positive inserts)



☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
M	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
K	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
N	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
S	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide										Cermet	Coated cermet	Cemented carbide											
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YB9315				YB9320	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151
For finishing	SCMT09T304-XF	9.525	9.525	3.97	4.4	0.4	★	★																						
	SCMT09T308-XF	9.525	9.525	3.97	4.4	0.8	★	★																						
For finishing	SCMT09T302-HF	9.525	9.525	3.97	4.4	0.2			○																					
	SCMT09T304-HF	9.525	9.525	3.97	4.4	0.4				●	○																			
	SCMT09T308-HF	9.525	9.525	3.97	4.4	0.8																								
For finishing	SCMT09T302-EF	9.525	9.525	3.97	4.4	0.2					○	●	★				★	○												
	SCMT09T304-EF	9.525	9.525	3.97	4.4	0.4					○	●	★				★	○												
	SCMT09T308-EF	9.525	9.525	3.97	4.4	0.8					○	●	★					○												
For finishing	SCMT09T304-AHF	9.525	9.525	3.97	4.4	0.4											★	★												
	SCMT09T308-AHF	9.525	9.525	3.97	4.4	0.8											★	★												

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool

SSBCR/L
KAPR:75°



Page A179

SSDCN
KAPR:45°



A180

SSKCR/L
KAPR:75°



A181

SSSCR/L
KAPR:45°



A182

SSKCR/L
KAPR:75°



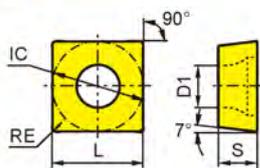
A204



General Turning Inserts

Cemented carbide and cermet inserts

SC (Positive inserts)



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron																		😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal																							😊	😊
S Heat resistant alloy, Ti alloy																		😊					😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																								
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented		
 For Al machining	SCGX09T304-LC	9.525	9.525	3.97	4.4	0.4																									★
	SCGX09T308-LC	9.525	9.525	3.97	4.4	0.8																									★
	SCGX120408-LC	12.7	12.7	4.76	5.5	0.8																									★
 For Al machining	SCGX09T302-LH	9.525	9.525	3.97	4.4	0.2																								○	
	SCGX09T304-LH	9.525	9.525	3.97	4.4	0.4																								○	
	SCGX09T308-LH	9.525	9.525	3.97	4.4	0.8																								★	
	SCGX120404-LH	12.7	12.7	4.76	5.56	0.4																								○	
 For roughing	SCGX120408-LH	12.7	12.7	4.76	5.56	0.8																							★		
	SCMT09T304-HR	9.525	9.525	3.97	4.4	0.4	★				●																		○		
	SCMT09T308-HR	9.525	9.525	3.97	4.4	0.8	★																			●	●				
	SCMT09T312-HR	9.525	9.525	3.97	4.4	1.2	★																								
	SCMT120404-HR	12.7	12.7	4.76	5.56	0.4																							○		
SCMT120408-HR	12.7	12.7	4.76	5.56	0.8	★	○				○														○	●	●				
SCMT120412-HR	12.7	12.7	4.76	5.56	1.2																								○		

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A179



A180



A181



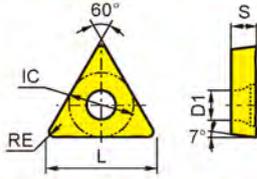
A182



A204

TC □ □ (Positive inserts)

😊 Good working condition 🤠 Normal working condition 😞 Bad working condition



Workpiece material	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel			😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron																					😊	😊	😊	😊
N Non-ferrous metal																							😊	😊
S Heat resistant alloy, Ti alloy																							😊	😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																Cermet	Coated cermet	Cemented carbide				
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251				YBS103	YBD052	YBD102	YBD152
HF For finishing	TCMT06T104-HF	6.4	3.97	1.98	2.2	0.4		○																					
	TCMT06T108-HF	6.4	3.97	1.98	2.2	0.8		○																					
	TCMT090202-HF	9.6	5.56	2.38	2.5	0.2			★													○					○		
	TCMT090204-HF	9.6	5.56	2.38	2.5	0.4			★																		●		
	TCMT090208-HF	9.6	5.56	2.38	2.5	0.8																			○				
	TCMT110202-HF	11	6.35	2.38	2.8	0.2						●										○							
	TCMT110204-HF	11	6.35	2.38	2.8	0.4			★ ★														●			●	○		
	TCMT110208-HF	11	6.35	2.38	2.8	0.8			○	○		●											○		○				
	TCMT16T302-HF	16.5	9.525	3.97	4.4	0.2			○																				
	TCMT16T304-HF	16.5	9.525	3.97	4.4	0.4			●			○														●	●		
	TCMT16T308-HF	16.5	9.525	3.97	4.4	0.8			○																	○			
EF For finishing	TCMT090202-EF	9.6	5.56	2.38	2.5	0.2					○	●	★				★	○											
	TCMT090204-EF	9.6	5.56	2.38	2.5	0.4					○	●	★				★	○											
	TCMT110202-EF	11	6.35	2.38	2.8	0.2					○	●	★				★	○											
	TCMT110204-EF	11	6.35	2.38	2.8	0.4					○	●	★ ★				★	○											
	TCMT110208-EF	11	6.35	2.38	2.8	0.8					○	●	★					○	○										
	TCMT16T304-EF	16.5	9.525	3.97	4.4	0.4					○	●	★				★	○											
	TCMT16T308-EF	16.5	9.525	3.97	4.4	0.8					○	●	★					○	○										

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool

STAGR/L
KAPR:90°



STFCR/L
KAPR:91°



STGCR/L
KAPR:91°

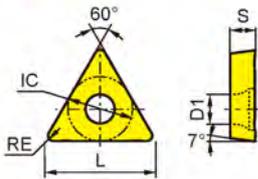


STFCR/L
KAPR:91°



TC   (Positive inserts)

 Good working condition  Normal working condition  Bad working condition



Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	               	               	               	               	 

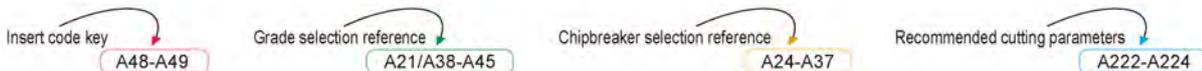
Inserts shape	Type	Dimensions(mm)					Coated cemented carbide											Cermet	Coated cermet	Cermet carbide													
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG205H	YB9315				YB9320	YB1053	YBM153	YBM215	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201
AHF  For finishing	TCMT110204-AHF	11	6.35	2.35	2.8	0.4																											
	TCMT110208-AHF	11	6.35	2.38	2.8	0.8											★ ★																
	TCMT16T304-AHF	16.5	9.525	3.97	4.4	0.4																											
	TCMT16T308-AHF	16.5	9.525	3.97	4.4	0.8												★ ★															
EM  For semi-finishing	TCMT090204-EM	9.6	5.56	2.38	2.8	0.4											● ★ ★					○ ★											
	TCMT090208-EM	9.6	5.56	2.38	2.8	0.8											● ★					○ ★											
	TCMT110204-EM	11	6.35	2.38	2.8	0.4											● ★ ★					○ ★											
	TCMT110208-EM	11	6.35	2.38	2.8	0.8											● ★					○ ★											
	TCMT110212-EM	11	6.35	2.38	2.8	1.2											● ★					○ ★											
	TCMT16T304-EM	16.5	9.525	3.97	4.4	0.4											● ★ ★					○ ★											
	TCMT16T308-EM	16.5	9.525	3.97	4.4	0.8											● ★ ★					○ ★											
	TCMT16T312-EM	16.5	9.525	3.97	4.4	1.2											● ★					○ ★											
EG  For semi-finishing	TCMT110204-EG	11	6.35	2.38	2.8	0.4																	★										
	TCMT110208-EG	11	6.35	2.38	2.8	0.8																	★										
XM  For semi-finishing	TCMT16T304-XM	16.5	9.525	3.97	4.4	0.4	★ ★																										
	TCMT16T308-XM	16.5	9.525	3.97	4.4	0.8	★ ★																										
	TCMT16T312-XM	16.5	9.525	3.97	4.4	1.2	★ ★																										

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



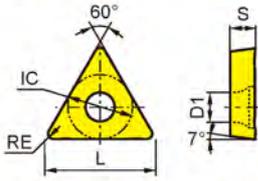
Page A183 A184 A185 A205





Cemented carbide and cermet inserts

TC (Positive inserts)



☺ Good working condition 😐 Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
M Stainless steel	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
K Cast iron	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
N Non-ferrous metal	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺
S Heat resistant alloy, Ti alloy	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺	☺☺☺☺☺☺☺☺☺☺

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																							
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented	
LC For Al machining	TCGX090202-LC	9.6	5.56	2.38	2.5	0.2																								★
	TCGX090204-LC	9.6	5.56	2.38	2.5	0.4																								★
	TCGX110202-LC	11	6.35	2.38	2.8	0.2																								★
	TCGX110204-LC	11	6.35	2.38	2.8	0.4																								★
	TCGX110208-LC	11	6.35	2.38	2.8	0.8																								★
	TCGX16T304-LC	16.5	9.525	3.97	4.4	0.4																								★
	TCGX16T308-LC	16.5	9.525	3.97	4.4	0.8																								★
LH For Al machining	TCGX090202-LH	9.6	5.56	2.38	2.5	0.2																							★	
	TCGX090204-LH	9.6	5.56	2.38	2.5	0.4																								★
	TCGX110202-LH	11	6.35	2.38	2.8	0.2																								★
	TCGX110204-LH	11	6.35	2.38	2.8	0.4																								★
	TCGX110208-LH	11	6.35	2.38	2.8	0.8																								★
	TCGX16T302-LH	16.5	9.525	3.97	4.4	0.2																							○	
	TCGX16T304-LH	16.5	9.525	3.97	4.4	0.4																								★
	TCGX16T308-LH	16.5	9.525	3.97	4.4	0.8																								★

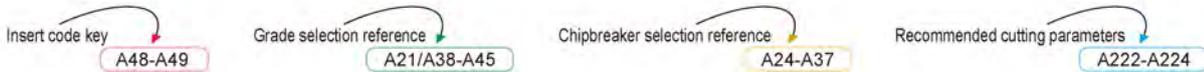
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

General turning
Cemented carbide and cermet inserts

Applicable tool

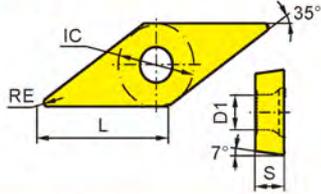


Page A183 A184 A185 A205





VC (Positive inserts)



😊 Good working condition 😬 Normal working condition 😞 Bad working condition

Workpiece material	VC103	VC203	VC152	VC252	VC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel			😊	😊	😊		😊	😊	😊													😊	😊	
K Cast iron																								
N Non-ferrous metal																								
S Heat resistant alloy, Ti alloy	😊	😊					😊												😊					

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide													Cermet	Cermet Coated cermet	Cermet Carbide										
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153				YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101
 For semi-finishing	VCMT160404-XM	16.6	9.525	4.76	4.4	0.4	★	★																								
	VCMT160408-XM	16.6	9.525	4.76	4.4	0.8	★	★																								
	VCMT160412-XM	16.6	9.525	4.76	4.4	1.2	★	★																								

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



Applicable tool

SVVCN KAPR: 72°30'	SVJCR/L KAPR: 93°	SVQCR/L KAPR: 107°30'	SVUCR/L KAPR: 93°
			

Page A177

A178

A206

A207

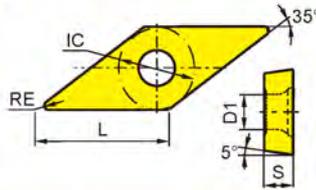
Insert code key
A48-A49

Grade selection reference
A21/A38-A45

Chipbreaker selection reference
A24-A37

Recommended cutting parameters
A222-A224

VB □ □ (Positive inserts)



☺ Good working condition ☹ Normal working condition ☹☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
M Stainless steel	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
K Cast iron	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
N Non-ferrous metal	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹
S Heat resistant alloy, Ti alloy	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																								
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet Carbide	Cemented carbide		
SF 	VBGT110302-SF	11	6.35	3.18	2.8	0.2																									
	VBGT110304-SF	11	6.35	3.18	2.8	0.4																									
For extra finishing																															
EF 	VBMT110302-EF	11	6.35	3.18	2.8	0.2						○	●	★					★	○											
	VBMT110304-EF	11	6.35	3.18	2.8	0.4						○	●	★					★	○											
	VBMT110308-EF	11	6.35	3.18	2.8	0.8						○	●	★					○	○											
	VBMT160404-EF	16.5	9.525	4.76	4.4	0.4						○	●	★					★	●											
	VBMT160408-EF	16.5	9.525	4.76	4.4	0.8						○	●	★					○	●											
XF 	VBMT110202-XF	11	6.35	2.38	2.8	0.2	★	★																							
	VBMT110204-XF	11	6.35	2.38	2.8	0.4	★	★																							
	VBMT110302-XF	11	6.35	3.18	2.8	0.2	★	★																							
	VBMT110304-XF	11	6.35	3.18	2.8	0.4	★	★																							
	VBMT160404-XF	16.5	9.525	4.76	4.4	0.4	★	★																							
	VBMT160408-XF	16.5	9.525	4.76	4.4	0.8	★	★																							
HF 	VBMT110202-HF	11	6.35	2.38	2.8	0.2																									
	VBMT110204-HF	11	6.35	2.38	2.8	0.4																			○						
	VBMT110208-HF	11	6.35	2.38	2.8	0.8																			○						

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A174 A175 A176 A208 A209

Insert code key
A48-A49

Grade selection reference
A21/A38-A45

Chipbreaker selection reference
A24-A37

Recommended cutting parameters
A222-A224

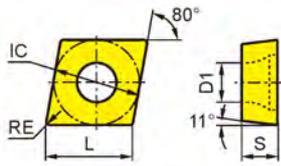
General turning

Cemented carbide and cermet inserts



Cemented carbide and cermet inserts

CP (Positive inserts)



☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
M Stainless steel	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
K Cast iron	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
N Non-ferrous metal	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹
S Heat resistant alloy, Ti alloy	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide										Cermet Coated cermet	Cemented carbide															
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212			YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201	
 For extra finishing	CPGT060202-SF	6.4	6.35	2.38	2.8	0.2																											
	CPGT060204-SF	6.4	6.35	2.38	2.8	0.4																											
	CPGT09T304-SF	9.7	9.525	3.97	4.4	0.4																											

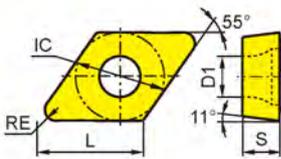
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



Page A232

DP (Positive inserts)



☺ Good working condition ☹ Normal working condition ☹ Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
M Stainless steel	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
K Cast iron	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹
N Non-ferrous metal	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺	☹☹☹☹☹☹☹☹☹☹
S Heat resistant alloy, Ti alloy	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☹☹☹☹☹☹☹☹☹☹	☺☺☺☺☺☺☺☺☺☺

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide										Cermet Coated cermet	Cemented carbide															
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212			YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201	
 For extra finishing	DPGT070202-SF	7.8	6.35	2.38	2.8	0.2																											
	DPGT070204-SF	7.8	6.35	2.38	2.8	0.4																											
	DPGT070208-SF	7.8	6.35	2.38	2.8	0.8																											
	DPGT11T304-SF	11.6	9.525	3.97	4.4	0.4																											
	DPGT11T308-SF	11.6	9.525	3.97	4.4	0.8																											

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Applicable tool



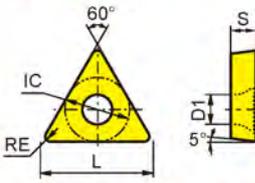
Page A211

A212

General turning

Cemented carbide and cermet inserts

TB (Positive inserts)



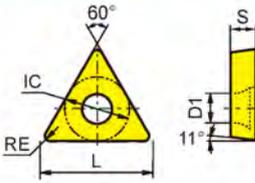
😊 Good working condition 😊 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊😊😊				
M Stainless steel		😊😊😊😊😊😊😊😊😊😊😊😊			
K Cast iron			😊😊😊😊😊😊😊😊😊😊😊😊		
N Non-ferrous metal				😊😊😊😊😊😊😊😊😊😊😊😊	
S Heat resistant alloy, Ti alloy					😊😊😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																																	
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide											
	TBGH060102L	6.4	3.97	1.59	2.2	0.2															★							★												
	TBGH060104L	6.4	3.97	1.59	2.2	0.4																★																		

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

TP (Positive inserts)



😊 Good working condition 😊 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊😊😊😊😊😊😊😊😊😊😊				
M Stainless steel		😊😊😊😊😊😊😊😊😊😊😊😊			
K Cast iron			😊😊😊😊😊😊😊😊😊😊😊😊		
N Non-ferrous metal				😊😊😊😊😊😊😊😊😊😊😊😊	
S Heat resistant alloy, Ti alloy					😊😊😊😊😊😊😊😊😊😊😊😊

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide																																	
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153	YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	Cermet	Cermet	Cemented carbide											
	TPGH090202L	9.6	5.56	2.38	2.8	0.2																																		
	TPGH090204L	9.6	5.56	2.38	2.8	0.4																																		
	TPGH110302L	11	6.35	3.18	3.18	0.2																																		
	TPGH110304L	11	6.35	3.18	3.18	0.4																																		

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Insert code key A48-A49

Grade selection reference A21/A38-A45

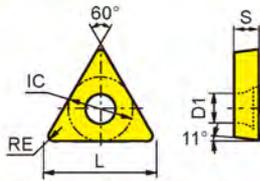
Chipbreaker selection reference A24-A37

Recommended cutting parameters A222-A224

Cemented carbide and cermet inserts

TP (Positive inserts)

Good working condition Normal working condition Bad working condition

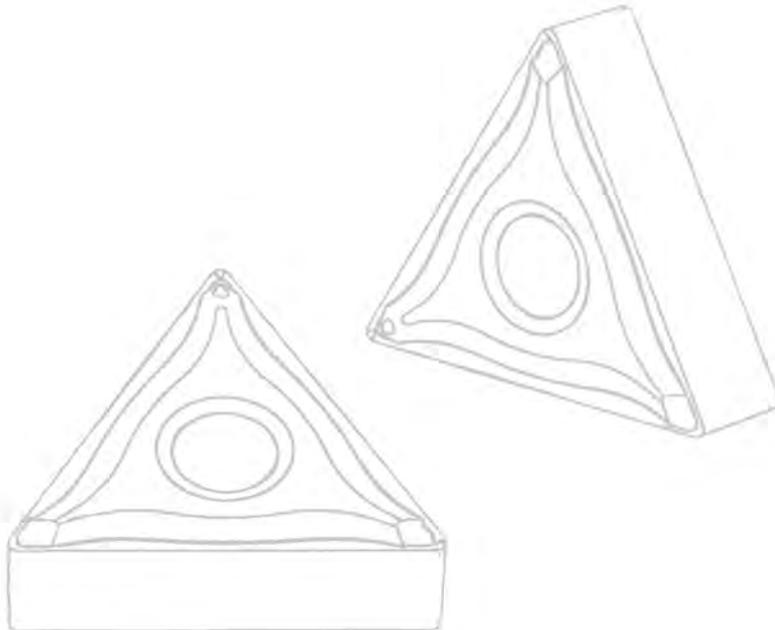


Workpiece material

P Steel																			
M Stainless steel																			
K Cast iron																			
N Non-ferrous metal																			
S Heat resistant alloy, Ti alloy																			

Inserts shape	Type	Dimensions(mm)					Coated cemented carbide													Cermet	Coated cermet	Cemented carbide													
		L	IC	S	D1	RE	YBC103	YBC203	YBC152	YBC252	YBC352	YBG102	YBG105	YBG202	YBG205	YBG212	YBG302	YBH053	YBM153				YBM215	YBM251	YBM253	YBS103	YBD052	YBD102	YBD152	YNG151	YNG151C	YD101	YD201		
SF For extra finishing	TPGT090202-SF	9.6	5.56	2.38	2.5	0.2																													
	TPGT090204-SF	9.6	5.56	2.38	2.5	0.4																													
	TPGT090208-SF	9.6	5.56	2.38	2.5	0.8																													
	TPGT110302-SF	11	6.35	3.18	2.8	0.2																													
	TPGT110304-SF	11	6.35	3.18	2.8	0.4																													
	TPGT110308-SF	11	6.35	3.18	2.8	0.8																													

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



Applicable tool



Page A213

D-type double-clamping tool holder



Applications sketch map of turning tools

External and internal turning

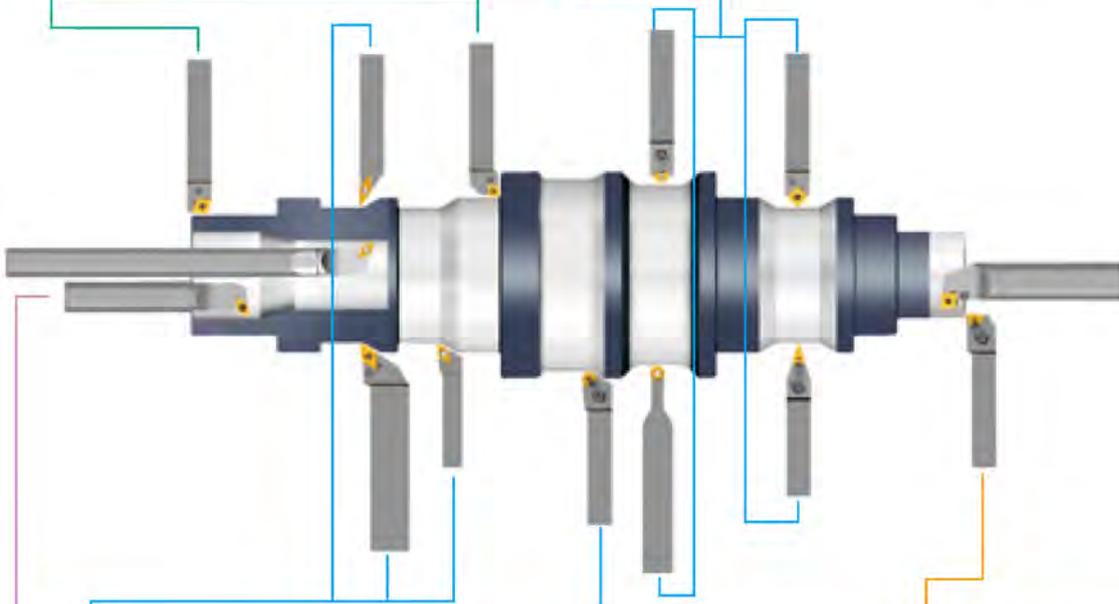
General turning

Applications sketch map of turning tools

External turning	Tool holder type						
	PCBNR/L□□	PSBNR/L□□	PSSNR/L□□	PTGNR/L□□	PTTNR/L□□	MCBNR/L□□	MSBNR/L□□
	MSRNR/L□□	MTGNR/L□□	MTJNR/L□□	MTJNR/L□□-Z	SCACR/L□□	SSBCR/L□□	SSSCR/L□□
	STACR/L□□	STGCR/L□□	DTJNR/L□□	DSBNR/L□□			

External and end surface turning	Tool holder type			
	PCLNR/L□□	PWLNRL/□□	MCLNR/L□□	MWLNRL/□□
	SCLCR/L□□	DCLNR/L□□	DWLNRL/□□	

Profile turning	Tool holder type			
	PDPNR□□□	PSDNR□□□	MDPNR□□□	MSDNR□□□
	MVVNR□□□	SDNCN□□□	SVVBN□□□	SVVCN□□□
	SSDCN□□□	SRDCN□□□	DVVNR□□□	



Profile turning	Tool holder type		
	PDJNR/L□□	MDJNR/L□□	MVJNR/L□□
	SDACR/L□□	SDJCR/L□□	SVABR/L□□
	SVJBR/L□□	SVJCR/L□□	
	DDJNR/L□□	DVJCR/L□□	

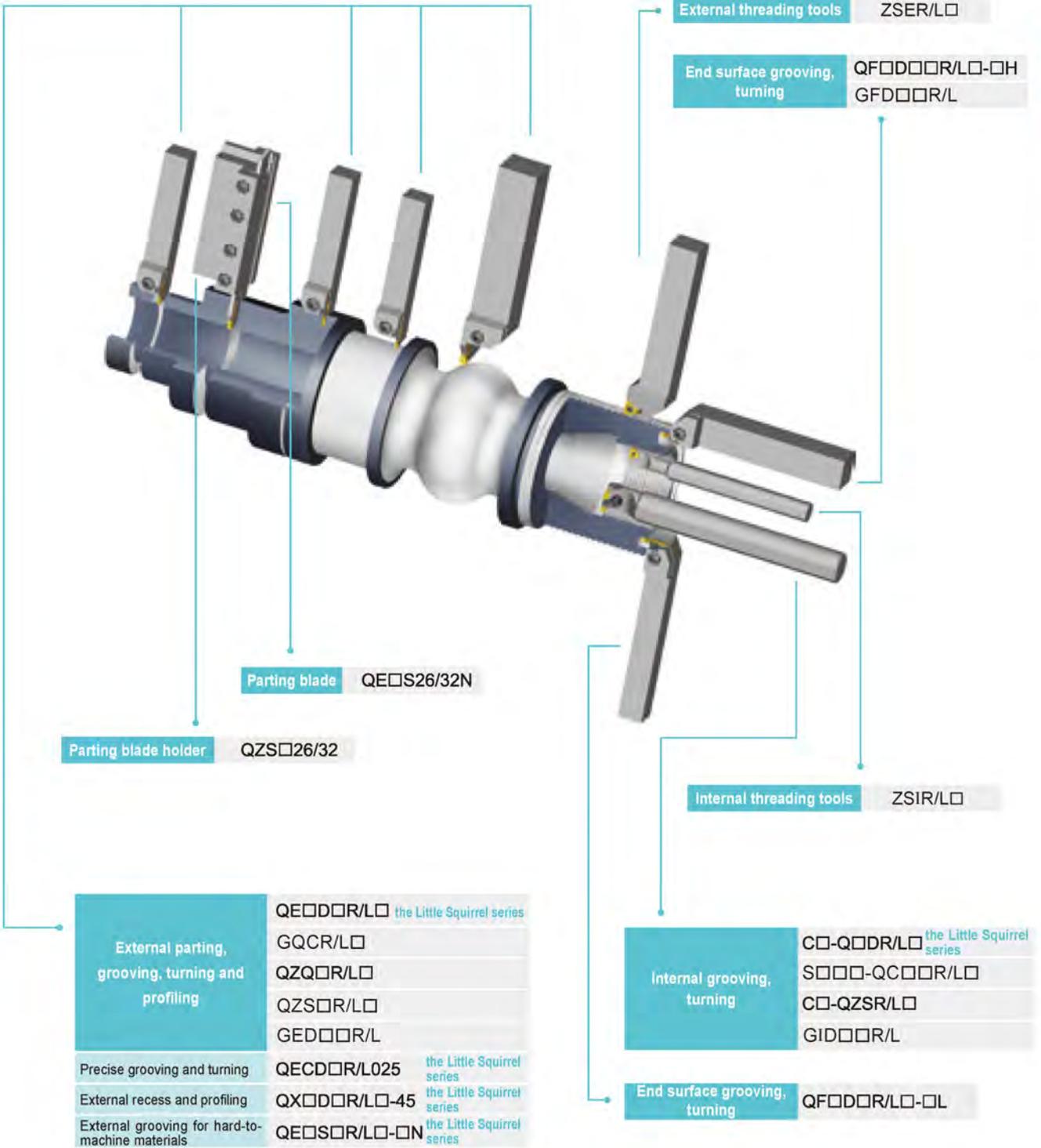
Profile turning	Tool holder type
	SRGCR/L□□

End surface turning	Tool holder type	
	PSKNR/L□□	PTFNR/L□□
	MSKNR/L□□	MTFNR/L□□
	SSKCR/L□□	STFCR/L□□

Tool holders for internal turning (Steel tool shank)						
	□-PSKNR/L□	□-PCLNR/L□	□-PDPNR/L□	□-PDUNR/L□	□-SDQCR/L□	□-SDZCR/L□
	□-PTFNR/L□	□-PWLNRL/□		□-SDUCR/L□	□-SDQPR/L□	
	□-SCFCR□	□-SCLCR/L□		□-SDUNR/L□	□-SVQBR/L□	
	□-SSKCR/L□	□-SCLPR/L□		□-SDUPR/L□	□-SVQCR/L□	
	□-STFCR/L□			□-SVUBR/L□		
	□-STUPR/L□			□-SVUCR/L□		

Tool holders for internal turning (Cemented carbide tool shank)				
	□-STUPR/L□	□-SCLPR/L□	□-SDUPR/L□	□-SDQPR/L□
		□-SVUCR/L□	□-SVQCR/L□	

● Parting, grooving and threading tools



General turning
Applications sketch map of turning tools

How to select external turning tools

How to select external turning tools

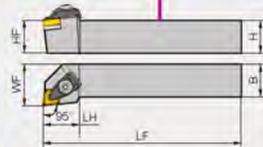
Explanation of external turning tools detailed table

- Listed according to clamping types.

- Approach angle of tools
- Tools type
The first 4 letters in the type description stands for tool shape and application
- Inserts type
- Specification chart
- Application chart
The arrow shows suitable applications such as external turning, profiling and end turning, etc.

Corresponding tool holders of insert **CN** D-type clamping

DCLNR/L
KAPR:95°



Type	Stock		Basic dimensions (mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
	R	L	H	B	LF	HF	WF	LH							
DCLNR/L	1616H09	▲	△	16	16	100	16	21	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K09	▲	△	20	20	125	20	25	24						
	2525M09	▲	△	25	25	150	25	32	24	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
	2020K12	▲	▲	20	20	125	20	25	26						
2525M12	▲	▲	25	25	150	25	32	28							
3225P12	▲	▲	32	25	170	32	32	28							

▲ Stock available △ Make-to-order

Applicable inserts		Application								
		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining				
Inserts shape	XF		XM		DR		HDR		TC	
	DF		PM		DR		HPR		Without chipbreaker	
	SF		DM		ER					
	EF		EM		ER					
	ADF		EG		SNR					
	NF		EH		LR					
			NM							
Tool holder type	DCLNR/L00H/K/M09	CN0090300	CN0090300							
	DCLNR/L00K/M/P12	CN00120400	CN00120400	CN00120400	CN00120400	CN00120400				

- Products specification
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

- Applicable inserts
Including applications of inserts, reference page, insert shape and corresponding tool holders.



TURNING



External turning tools

External turning tools overview ● A128-A131

External turning tools code key ● A132-A133

Detailed table of external turning tools ● A136-A187

External turning tool holders by D type clamping ● A136-A141

External turning tool holders by P type clamping ● A142-A153

External turning tool holders by M type clamping ● A154-A168

External turning tool holders by S type clamping ● A169-A187



External turning tools overview

General turning

External turning tools overview

Clamping system	Tool type	Approach angle(KAPR°)	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
D	DCLNR/L	95			☺				☺		A136
	DDJNR/L	93					☺		☺	☺	A137
	DSBNR/L	75	☺						☺		A138
	DTGNR/L	91	☺						☺	☺	A139
	DVVNN	72.5						☺	☺		A140
	DVJNR/L	93					☺		☺	☺	A140
	DWLNR/L	95			☺				☺		A141
	PCBNR/L	75	☺						☺		A142
	PCLNR/L	95			☺				☺		A143
	PDJNR/L	93					☺		☺	☺	A144
P	PDPNN	62.5						☺	☺		A145
	PSBNR/L	75	☺						☺		A146
	PSDNN	45						☺	☺		A147
	PSKNR/L	75		☺					☺		A148
	PSSNR/L	45	☺						☺		A149
	PTFNR/L	91		☺					☺	☺	A150

☺ Recommended ☺ Available

External turning tools overview

Clamping system	Tool type	Approach angle(KAPR°)	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
P	PTTNR/L 	60	☺						☺		A151
	PTGNR/L 	90	☺						☺	☺	A152
	PWLNRL/L 	95			☺				☺		A153
M	MCBNR/L 	75	☺						☺		A154
	MCLNR/L 	95			☺				☺		A155
	MDJNR/L 	93					☺		☺	☺	A156
	MDPNN 	62.5						☺	☺		A157
	MSBNR/L 	75	☺						☺		A158
	MSRNR/L 	75	☺						☺		A159
	MSKNR/L 	75		☺					☺		A160
	MSDNN 	45						☺	☺		A161
	MTGNR/L 	90	☺						☺	☺	A162
	MTJNR/L 	93	☺						☺		A163
	MTJNR/L-Z 	93		☺					☺		A164
	MTFNR/L 	91		☺					☺		A165

☺ Recommended ☺ Available



External turning tools overview

General turning

External turning tools overview

Clamping system	Tool type	Approach angle(KAPR°)	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
M	MVVNN 	72.5						☺	☺	A166	
	MVJNR/L 	93					☺		☺	☺	A167
	MWLNRL/L 	95				☺			☺		A168
S	SCACR/L 	90	☺						☺	☺	A169
	SCLCR/L 	95				☺			☺	☺	A170
	SDACR/L 	90					☺		☺	☺	A171
	SDJCR/L 	93					☺		☺	☺	A172
	SDNCN 	62.5						☺	☺	☺	A173
	SVJBR/L 	93					☺		☺	☺	A174
	SVABR/L 	90					☺		☺	☺	A175
	SVVBN 	72.5						☺	☺	☺	A176
	SVVCN 	72.5						☺	☺	☺	A177
	SVJCR/L 	93					☺		☺	☺	A178
	SSBCR/L 	75						☺	☺		A179
	SSDCN 	45						☺	☺		A180

☺ Recommended ☺ Available

External turning tools overview

Clamping system	Tool type	Approach angle(KAPR°)	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
S	SSKCR/L 	75		☺					☺		A181
	SSSCR/L 	45	☺						☺		A182
	STACR/L 	90	☺						☺	☺	A183
	STFCR/L 	91		☺					☺		A184
	STGCR/L 	91	☺						☺	☺	A185
	SRDCN 							☺	☺		A186
	SRGCR/L 					☺			☺		A187

☺ Recommended ☺ Available

General turning

External turning tools overview



External turning tools code key

General turning

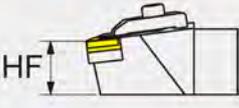
External turning tools code key

Clamping system	Insert shape	Clearance angle of insert	Cutting direction
 P - Hole clamping	 C	 B	 L - Left-hand
 M - Top and hole clamping	 S	 C	
 S - Screw on	 R	 D	 R - Right-hand
 C - Top clamping	 T	 E	
 D - double clamping	 V	 N	
	 W	 P	 N Right and left hand

P C L N L

Tool holder style and approach angle							
A	B	C	D	E	F	G	H

Nose height (mm)



Code	Height
12	12
16	16
20	20
25	25
32	32
40	40
50	50

Width of tool holder (mm)



Code	Width
12	12
16	16
20	20
25	25
32	32
40	40
50	50

Length of tool holder (mm)



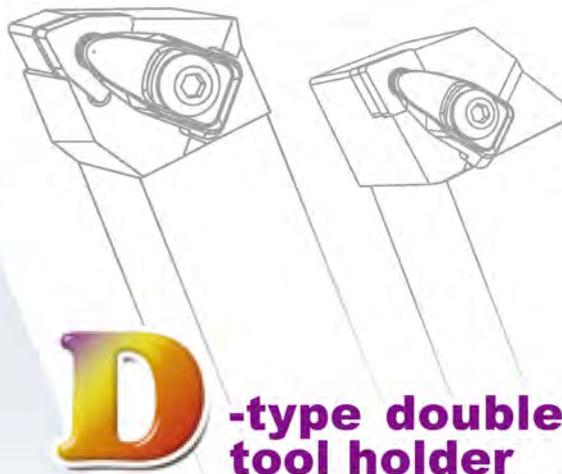
Code	Length
E	70
F	80
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300

General turning

External turning tools code key

25 25 M 12

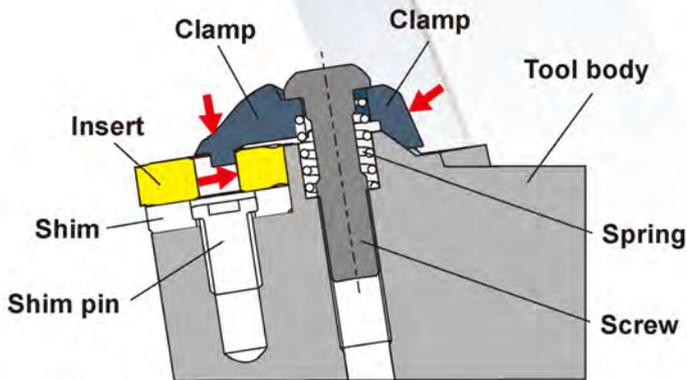
Length of cutting edge							
Inserts shape	C	D	R	S	T	V	W
							
Inscribed circle (mm)	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
12.700	12	15	12	12	22	22	08
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---
32.000	---	---	32	---	---	---	---



D

-type double-clamping tool holder

With newly developed double-clamping structure, D-type turning tools have high clamping rigidity and high positioning accuracy, achieving easy and secure clamping of inserts. It is the best choice for the clamping of straight hole negative inserts.



Convenient secure clamping device



Slots in the tool body match perfectly with the clamp, realizing simple and easy clamping.

Uniquely clamp

The clamp and the inner wall of insert hole make an arc contact. The stable and evenly distributed clamping force ensures more secure clamping.

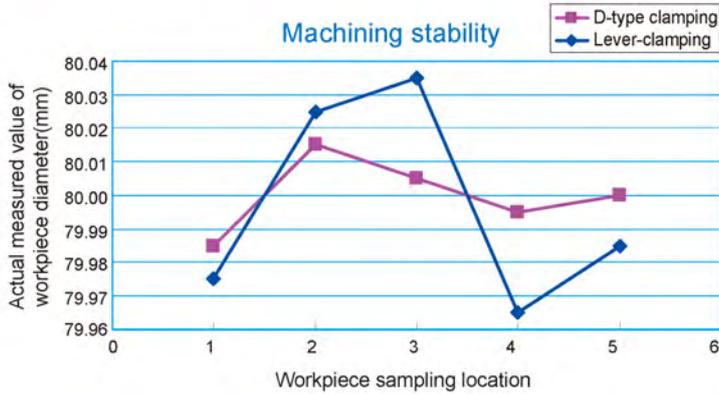
lug boss on both ends and double-locating make more insert clamp secure.

Arc locating surface makes large contact area and the force is evenly distributed.

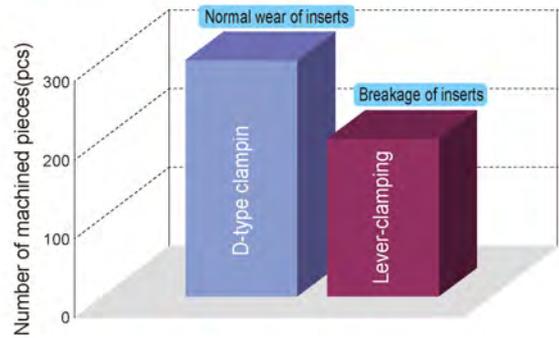
Simple and compact structure effectively prevents chip blocking while ensuring high clamping rigidity.

Compared with lever-clamping:

① Accurate locating ensures more stable machining accuracy.



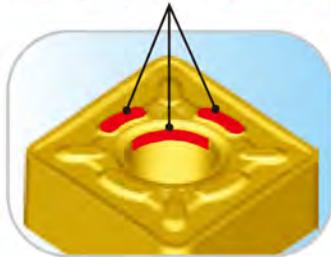
② High clamping rigidity effectively improves resistance to breakage of insert.



Compared with similar products of company A:

① Locating surface contact: (checking the contact location of clamp by dyeing)

Force evenly distributed, firm clamping, high locating accuracy.



ZCC-CT



Similar product of company A

② Effect on tool life:

Tool holder: DCLNL3225P12
 Insert: YBC252/CNMG120408-DR
 Cutting material: 45# steel
 Cutting parameters: $V_c=250\text{m/min}$
 $a_p=2\text{mm}$
 $f=0.6\text{mm/r}$

After 60 minutes of cutting



ZCC-CT



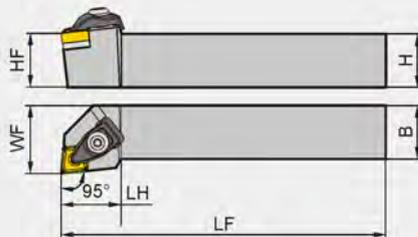
Similar product of company A



External turning tools

Corresponding tool holders of insert **CN** D-type clamping

DCLNR/L KAPR:95°



Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring	
		R	L	H	B	LF	HF	WF							LH
DCLNR/L	1616H09	▲	△	16	16	100	16	21	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K09	▲	△	20	20	125	20	25	24						
	2525M09	▲	△	25	25	150	25	32	24						
	2020K12	▲	▲	20	20	125	20	25	28	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
	2525M12	▲	▲	25	25	150	25	32	28						
	3225P12	▲	▲	32	25	170	32	32	28						

▲Stock available △Make-to-order

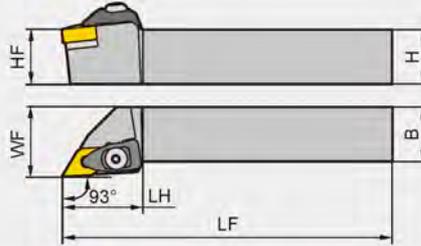
Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF  A52	XM  A54	DR Double-side  A56	HDR  A58	TC  A58
	DF  A52	PM  A53	DR Single-side  A57	HPR  A58	Without chipbreaker  A59
	SF  A52	DM  A54	ER Double-side  A57		
	EF  A52	EM  A55	ER Single-side  A57		
	ADF  A53	EG  A55	SNR Double-side  A57		
	NF  A53	EH  A55	LR Single-side  A56		
	NM  A55				
Tool holder type	DCLNR/L □□H/K/M09	CN□□0903□□	CN□□0903□□		
	DCLNR/L □□K/M/P12	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□



Corresponding tool holders of insert **DN** D-type clamping

DDJNR/L
KAPR:93°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
	R	L	H	B	LF	HF	WF	LH							
DDJNR/L	1616H11	△	△	16	16	100	16	20	30	CM5×22C	D11BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K11	▲	△	20	20	125	20	25	30						
	2525M11	▲	△	25	25	150	25	32	30						
	3225P11	△	△	32	25	170	32	32	30						
	2020K15	▲	▲	20	20	125	20	25	35	CM6×25C	D15BM	WH40L	C2RA	SM6×10XA1	SPR4
	2525M15	▲	▲	25	25	150	25	32	35						
	3232P15	▲	▲	32	32	170	32	40	35						

▲Stock available △Make-to-order

Applicable inserts

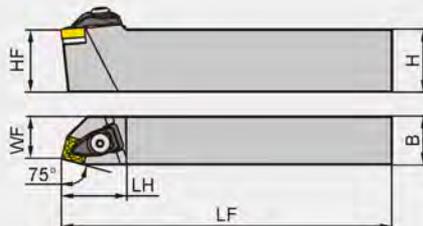
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A66	TC A66
	DF A60	PM A62	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				
Tool holder type	DDJNR/L□□H/K/M/P11	DN□□1104□□	DN□□1104□□		DN□□1104□□
	DDJNR/L□□K/M/P15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

General turning
External turning tools

External turning tools

Corresponding tool holders of insert **SN** D-type clamping

DSBNR/L KAPR:75°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
	R	L	H	B	LF	HF	WF	LH							
DSBNR/L	1616H09	▲	△	16	16	100	16	13	28	CM5×22C	S09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K12	▲	▲	20	20	125	20	17	34						
	2525M12	▲	▲	25	25	150	25	22	34	CM6×25C	S12BM	WH40L	C2RA	SM6×10XA1	SPR4
	3225P12	▲	▲	32	25	170	32	22	34						
	3232P15	▲	▲	32	32	170	32	27	41						

▲Stock available △Make-to-order

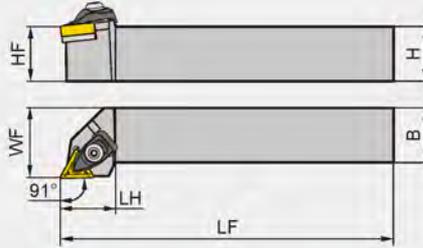
Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining		
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76						
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77						
	EF A68	DM A71	ER Double-side A74								
	ADF A69	EM A71	ER Single-side A75								
	SF A69	EG A72	SNR Double-side A75								
		NM A72	LR Single-side A72								
Tool holder type	DSBNR/L <input type="checkbox"/> <input type="checkbox"/> H09	SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>			
	DSBNR/L <input type="checkbox"/> <input type="checkbox"/> K/M/P12	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	
	DSBNR/L <input type="checkbox"/> <input type="checkbox"/> P15	SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	



Corresponding tool holders of insert **TN** D-type clamping

DTGNR/L
KAPR:91°



Type	Stock	Basic dimensions(mm)								Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	H	B	LF	HF	WF	LH						
DTGNR/L	1616H16	△	△	16	16	100	16	22	25	CM5×22C	T16BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K16	▲	▲	20	20	125	20	25	25						
	2525M16	▲	▲	25	25	150	25	32	25						

▲ Stock available △ Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining	For cast iron machining	
Inserts shape	XF  A78	XM  A80	DR Double-side  A82	HDR  A84	TC  A84				
	DF  A78	PM  A80	DR Single-side  A83			Without chipbreaker  A84			
	SF  A78	DM  A81	ER Double-side  A83						
	EF  A79	EM  A81	SNR Double-side  A83						
	ES  A79	EG  A81	LR Single-side  A83						
	ADF  A79	EH  A82							

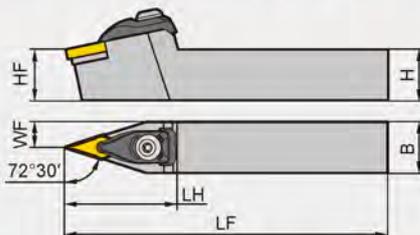
Tool holder type	DTGNR/L□□H/K/M16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
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External turning tools

Corresponding tool holders of insert **VN** D-type clamping

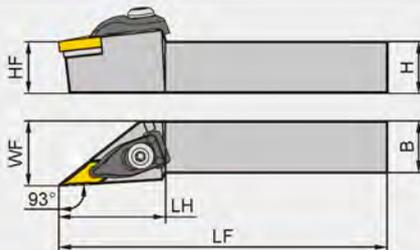
DVVNN KAPR:72°30'



Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring
		H	B	LF	HF	WF	LH							
DVVNN	2020K16	△	20	20	125	20	10	44	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	2525M16	▲	25	25	150	25	12.5	44						

▲Stock available △Make-to-order

DVJNR/L KAPR:93°



Type	Stock		Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring
	R	L	H	B	LF	HF	WF	LH							
DVJNR/L	2020K16	▲	▲	20	20	125	20	25	41	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	2525M16	▲	▲	25	25	150	25	32	41						

▲Stock available △Make-to-order

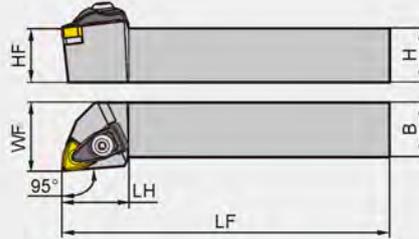
Applicable inserts

Application	For finishing		For semi-finishing		For roughing	For cast iron machining		
Inserts shape	XF	 A85	XM	 A86	SNR	 A87	TC	 A87
	DF	 A85	PM	 A86				
	EF	 A85	DM	 A86				
	ADF	 A85	EM	 A87				
	SF	 A86	EG	 A87				
	NF	 A85	NM	 A87				
	NGF	 A86						
Tool holder type	DVVNN □□K/M16		VN□□1604□□		VN□□1604□□	VN□□1604□□	VN□□1604□□	
	DVJNR/L □□K/M16		VN□□1604□□		VN□□1604□□	VN□□1604□□	VN□□1604□□	



Corresponding tool holders of insert **WN** D-type clamping

DWLNRL
KAPR:95°



Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring	
		R	L	H	B	LF	HF	WF							LH
DWLNRL/L	1616H06	▲	△	16	16	100	16	25	24	CM5×22C	W06BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K06	▲	▲	20	20	125	20	25	24						
	2525M06	▲	▲	25	25	150	25	32	24						
	2020K08	▲	▲	20	20	125	20	25	31	CM6×25C	W08BM	WH40L	C2RA	SM6×10XA1	SPR4
	2525M08	▲	▲	25	25	150	25	32	31						
	3225P08	△	△	32	25	170	32	32	31						

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining
Inserts shape	XF  A88	XM  A90	DR Double-side  A92	TC  A93
	DF  A88	PM  A90	SNR Double-side  A92	Without chipbreaker  A93
	SF  A88	DM  A91		
	EF  A89	EM  A91		
	ES  A89	EG  A91		
	ADF  A89	EH  A92		
	NF  A89	NM  A92		
Tool holder type	DWLNRL/L□□H/K/M06	WN□□0604□□	WN□□0604□□	WN□□0604□□
	DWLNRL/L□□K/M/P08	WN□□0804□□	WN□□0804□□	WN□□0804□□

General turning

External turning tools



External turning tools

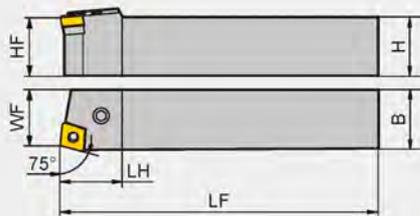
Corresponding tool holders of insert **CN** P-type clamping

PCBNR/L

KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PCBNR/L	2020K12	▲	▲	20	20	125	20	17	27	LEM8×21	C12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	22	27					
	3232P12	▲	▲	32	32	170	32	27	33					
	2525M16	▲	▲	25	25	150	25	22	33	LEM8×25	C16AP	WH30L	L5	SP5
	3232P16	▲	▲	32	32	170	32	27	33					
	4040R16	▲	▲	40	40	200	40	35	38					
	3232P19	▲	▲	32	32	170	32	27	38	LEM10×27	C19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	35	40					
	4040S2507	▲	▲	40	40	250	40	35	50	LEM12×36A	C25AP-07	WH50L	L8	SP8
	4040S2509	▲	▲	40	40	250	40	35	50		C25AP			

▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining	
Inserts shape	XF	A52	XM	A54	DR Double-side	A56	HDR	A58	TC	A58
	DF	A52	PM	A53	DR Single-side	A57	HPR	A58	Without chipbreaker	A59
	SF	A52	DM	A54	ER Double-side	A57				
	EF	A52	EM	A55	ER Single-side	A57				
	ADF	A53	EG	A55	SNR Double-side	A57				
	NF	A53	EH	A55	LR Single-side	A56				
			NM	A55						
Tool holder type	PCBNR/L□□K/M/P12		CN□□1204□□		CN□□1204□□		CN□□1204□□		CN□□1204□□	
	PCBNR/L□□M/P/R16		CN□□1606□□		CN□□1606□□		CN□□1606□□		CN□□1606□□	
	PCBNR/L□□P/R19		CN□□1906□□		CN□□1906□□		CN□□1906□□		CN□□1906□□	
	PCBNR/L□□S2507				CN□□2507□□					
	PCBNR/L□□S2509				CN□□2509□□					

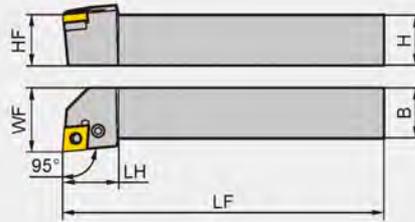


Corresponding tool holders of insert **CN** P-type clamping

PCLNR/L
KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PCLNR/L	2020K12	▲	▲	20	20	125	20	25	28	LEM8×21	C12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	32	33					
	3225P12	△	△	32	25	170	32	32	33					
	3232P12	▲	▲	32	32	170	32	40	33					
	2525M16	▲	▲	25	25	150	25	32	33	LEM8×25	C16AP	WH30L	L5	SP5
	3225P16	△	△	32	25	170	32	32	33					
	3232P16	▲	▲	32	32	170	32	40	33					
	4040R16	△	△	40	40	200	40	50	38	LEM10×27	C19AP	WH40L	L6	SP6
	3232P19	▲	▲	32	32	170	32	40	38					
	4040R19	▲	▲	40	40	200	40	50	38	LEM12×36A	C25AP-07 C25AP	WH50L	L8	SP8
4040S2507	▲	▲	40	40	250	40	50	49						
4040S2509	▲	▲	40	40	250	40	50	49						

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A52	XM A54	DR Double-side A56	HDR A58	TC A58
	DF A52	PM A53	DR Single-side A57	HPR A58	Without chipbreaker A59
	SF A52	DM A54	ER Double-side A57		
	EF A52	EM A55	ER Single-side A57		
	ADF A53	EG A55	SNR Double-side A57		
	NF A53	EH A55	LR Single-side A56		
		NM A55			
Tool holder type	PCBNR/L□□K/M/P12	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	PCBNR/L□□M/P/R16	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□
	PCBNR/L□□P/R19		CN□□1906□□	CN□□1906□□	CN□□1906□□
	PCBNR/L□□S2507		CN□□2507□□		
	PCBNR/L□□S2509		CN□□2509□□		

General turning

External turning tools

External turning tools

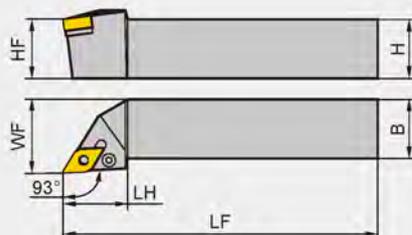
Corresponding tool holders of insert **DN** P-type clamping

PDJNR/L

KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PDJNR/L	1616H11	▲	▲	16	16	100	16	20	25	LEM6 × 13.4A	D11AP	WH25L	L3	SP3
	2020K11	▲	▲	20	20	125	20	25	25					
	2525M11	▲	▲	25	25	150	25	32	30					
	2020K15	▲	▲	20	20	125	20	25	35	LEM8 × 21	D15AP	WH30L	L4B	SP4
	2525M15	▲	▲	25	25	150	25	32	35					
	3232P15	▲	▲	32	32	170	32	40	35					
	2020K15-3	▲	△	20	20	125	20	25	35	LEM8 × 21	D15AP	WH30L	L4	SP4
	2525M15-3	▲	▲	25	25	150	25	32	35					
3232P15-3	▲	△	32	32	170	32	40	35						

▲ Stock available △ Make-to-order

Applicable inserts

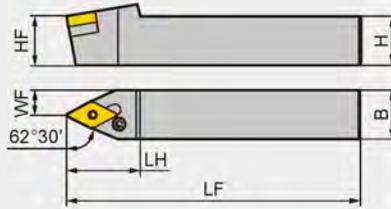
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A66	TC A66
	DF A60	PM A62	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				
Tool holder type	PDJNR/L□□H/K/M11	DN□□1104□□	DN□□1104□□		DN□□1104□□
	PDJNR/L□□K/M/P15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	PDJNR/L□□K/M/P15-3	DN□□1504□□	DN□□1504□□		DN□□1504□□

Corresponding tool holders of insert **DN** P-type clamping

PDPNN
KAPR:62°30'



R-type shown



Type	Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
		H	B	LF	HF	WF	LH						
PDPNN	2020K15	▲	20	20	125	20	10	38	LEM8×21	D15AP	WH30L	L4B	SP4
	2525M15	▲	25	25	150	25	12.5	38					
	3232P15	▲	32	32	170	32	16	38					
	2020K15-3	▲	20	20	125	20	10	38	LEM8×21	D15AP	WH30L	L4	SP4
	2525M15-3	▲	25	25	150	25	12.5	38					
	3232P15-3	▲	32	32	170	32	16	38					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A66	TC A66
	DF A60	PM A62	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				
Tool holder type	PDJNR/L□□H/K/M11	DN□□1104□□	DN□□1104□□		DN□□1104□□
	PDJNR/L□□K/M/P15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	PDJNR/L□□K/M/P15-3	DN□□1504□□	DN□□1504□□		DN□□1504□□

General turning

External turning tools



External turning tools

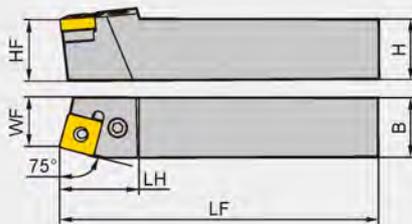
Corresponding tool holders of insert **SN** P-type clamping

PSBNR/L

KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PSBNR/L	1616H09	▲	▲	16	16	100	16	13	21	LEM6×13.4A	S09AP	WH25L	L3	SP10
	2020K09	▲	▲	20	20	125	20	17	21					
	2020K12	▲	▲	20	20	125	20	17	28					
	2525M12	▲	▲	25	25	150	25	22	28	LEM8×21	S12AP	WH30L	L4	SP4
	3232P12	▲	△	32	25	170	32	22	28					
	3232P15	▲	▲	32	32	170	32	27	28	LEM8×25	S15AP	WH30L	L5	SP5
	2525M15	▲	▲	25	25	150	25	22	35					
	3232P19	▲	▲	32	32	170	32	27	35	LEM10×27	S19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	35	40					
	4040S2507	▲	▲	40	40	250	40	35	48	LEM12×36A	S25AP	WH50L	L8	SP8
4040S2509	▲	▲	40	40	250	40	35	48	S25AP-09					

▲ Stock available △ Make-to-order

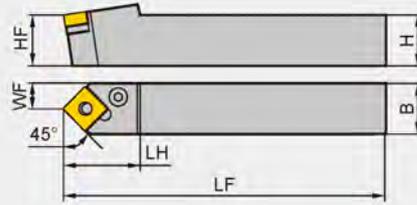
Applicable inserts

Application	For finishing		For semi-finishing	For roughing		For heavy machining	For cast iron machining
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76		
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77		
	EF A68	DM A71	ER Double-side A74				
	ADF A69	EM A71	ER Single-side A75				
	SF A69	EG A72	SNR Double-side A75				
		NM A72	LR Single-side A72				
Tool holder type	PSBNR/L□□H/K09	S□□0903□□	S□□0903□□				S□□0903□□
	PSBNR/L□□K/M/P12	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□
	PSBNR/L□□M/P15	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□
	PSBNR/L□□P/R19		S□□1906□□	S□□1906□□	S□□1906□□	S□□1906□□	S□□1906□□
	PSBNR/L□□S2507			S□□2507□□	S□□2507□□	S□□2507□□	S□□2507□□
	PSBNR/L□□S2509			S□□2509□□	S□□2509□□	S□□2509□□	S□□2509□□



Corresponding tool holders of insert **SN** P-type clamping

PSDNN
KAPR:45°



Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Lever	Shim pin
		H	B	LF	HF	WF	LH						
PSDNN	2020K12	▲	20	20	125	20	10	30	LEM8×21	S12AP	WH30L	L4	SP4
	2525M12	▲	25	25	150	25	12.5	30					
	3232P12	▲	32	32	170	32	16	35					
	2525M15	▲	25	25	150	25	12.5	35	LEM8×25	S15AP	WH30L	L5	SP5
	3232P15	▲	32	32	170	32	16	40					
	3232P19	▲	32	32	170	32	16	40	LEM10×27	S19AP	WH40L	L6	SP6
	4040R19	▲	40	40	200	40	20	40					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF  A68	XM  A70	DR Double-side  A73	HDR  A75	TC  A76
	DF  A68	PM  A70	DR Single-side  A74	HPR  A76	Without chipbreaker  A77
	EF  A68	DM  A71	ER Double-side  A74		
	ADF  A69	EM  A71	ER Single-side  A75		
	SF  A69	EG  A72	SNR Double-side  A75		
		NM  A72	LR Single-side  A72		
Tool holder type	PSDNN□□K/M/P12	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	PSDNN□□M/P15	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	PSDNN□□P/R19		SN□□1906□□	SN□□1906□□	SN□□1906□□

General turning

External turning tools



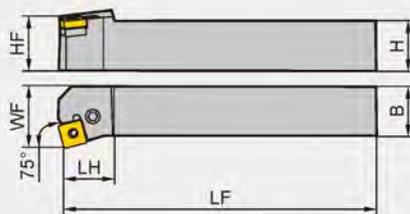
External turning tools

Corresponding tool holders of insert **SN** P-type clamping

PSKNR/L KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PSKNR/L	1616H09	▲	▲	16	16	100	16	20	17	LEM6×13.4A	S09AP	WH25L	L3	SP10
	2020K09	▲	△	20	20	125	20	25	20					
	2020K12	▲	▲	20	20	125	20	25	26					
	2525M12	▲	▲	25	25	150	25	32	26	LEM8×21	S12AP	WH30L	L4	SP4
	3232P12	▲	▲	32	32	170	32	40	30					
	2525M15	▲	▲	25	25	150	25	32	32	LEM8×25	S15AP	WH30L	L5	SP5
	3232P15	▲	▲	32	32	170	32	40	32					
	3232P19	▲	▲	32	32	170	32	40	36	LEM10×27	S19AP	WH40L	L6	SP6
4040R19	▲	▲	40	40	200	40	50	40						

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining		
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76						
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77						
	EF A68	DM A71	ER Double-side A74								
	ADF A69	EM A71	ER Single-side A75								
	SF A69	EG A72	SNR Double-side A75								
		NM A72	LR Single-side A72								
Tool holder type	PSKNR/L□□H/K09	S□□0903□□	S□□0903□□					S□□0903□□			
	PSKNR/L□□K/M/P12	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□	S□□1204□□			
	PSKNR/L□□M/P15	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□	S□□1506□□			
	PSKNR/L□□P/R19		S□□1906□□	S□□1906□□	S□□1906□□	S□□1906□□	S□□1906□□	S□□1906□□			

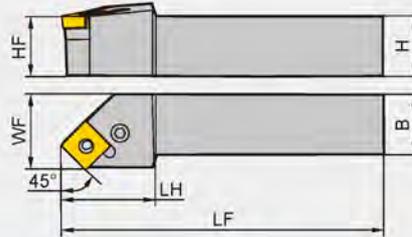


Corresponding tool holders of insert **SN** P-type clamping

PSSNR/L
KAPR:45°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PSSNR/L	1616H09	▲	▲	16	16	100	16	20	25	LEM6×13.4A	S09AP	WH25L	L3	SP10
	2020K09	△	△	20	20	125	20	25	25					
	2020K12	▲	▲	20	20	125	20	25	30					
	2525M12	▲	▲	25	25	150	25	32	30	LEM8×21	S12AP	WH30L	L4	SP4
	3232P12	▲	▲	32	32	170	32	40	40					
	2525M15	▲	▲	25	25	150	25	32	35	LEM8×25	S15AP	WH30L	L5	SP5
	3232P15	▲	▲	32	32	170	32	40	40					
	3232P19	▲	▲	32	32	170	32	40	40	LEM10×27	S19AP	WH40L	L6	SP6
	4040R19	▲	▲	40	40	200	40	50	50					
	4040S2507	▲	▲	40	40	250	40	50	50	LEM12×36A	S25AP	WH50L	L8	SP8
4040S2509	▲	▲	40	40	250	40	50	50	S25AP-09					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining		
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76						
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77						
	EF A68	DM A71	ER Double-side A74								
	ADF A69	EM A71	ER Single-side A75								
	SF A69	EG A72	SNR Double-side A75								
		NM A72	LR Single-side A72								
Tool holder type	PSSNR/L□□H/K09	SN□□0903□□	SN□□0903□□	SN□□0903□□					SN□□0903□□		
	PSSNR/L□□K/M/P12	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□					
	PSSNR/L□□M/P15	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□					
	PSSNR/L□□P/R19		SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□					
	PSSNR/L□□S2507			SN□□2507□□	SN□□2507□□						
	PSSNR/L□□S2509			SN□□2509□□	SN□□2509□□						

General turning
External turning tools



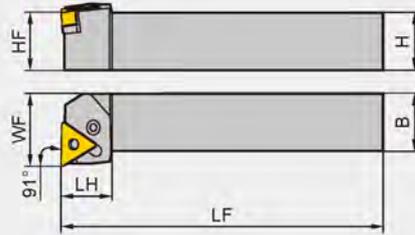
External turning tools

Corresponding tool holders of insert **TN** P-type clamping

PTFNRIL
KAPR:91°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Shim	Wrench	Lever	Shim pin
	R	L	H	B	LF	HF	WF	LH						
PTFNR/L	1616H16	△	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	2020K16	▲	▲	20	20	125	20	25	20					
	2525M16	▲	▲	25	25	150	25	32	22					
	2525M22	▲	▲	25	25	150	25	32	25	LEM8×21	T22AP	WH30L	L4	SP4
	3232P22	▲	▲	32	32	170	32	40	30					
	3232P27	▲	▲	32	32	170	32	40	34	LEM8×25	T27AP	WH30L	L5	SP5
	4040S27	▲	▲	40	40	250	40	50	34					

▲ Stock available △ Make-to-order

Applicable inserts

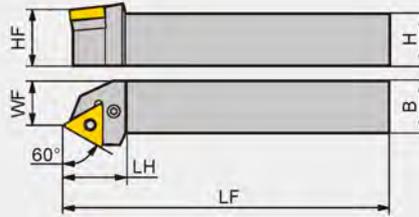
Application	For finishing		For semi-finishing	For roughing		For heavy machining	For cast iron machining
Inserts shape	XF A78	XM A80	DR Double-side A82	HDR A84	TC A84		
	DF A78	PM A80	DR Single-side A83		Without chipbreaker A84		
	SF A78	DM A81	ER Double-side A83				
	EF A79	EM A81	SNR Double-side A83				
	ES A79	EG A81	LR Single-side A83				
	ADF A79	EH A82					
Tool holder type	PTFNR/L□□H/K/M16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	PTFNR/L□□M/P22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□
	PTFNR/L□□P/S27			TN□□2706□□	TN□□2706□□	TN□□2706□□	TN□□2706□□

Corresponding tool holders of insert **TN** P-type clamping

PTTNR/L
KAPR:60°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PTTNR/L	1616H16	▲	▲	16	16	100	16	13	25	LEM6×17	T16AP	WH25L	L3	SP3
	2020K16	▲	▲	20	20	125	20	17	25					
	2525M16	△	△	25	25	150	25	22	25					
	2525M22	▲	▲	25	25	150	25	22	32	LEM8×21	T22AP	WH30L	L4	SP4

▲Stock available △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A78	XM A80	DR Double-side A82	HDR A84	TC A84
	DF A78	PM A80	DR Single-side A83		Without chipbreaker A84
	SF A78	DM A81	ER Double-side A83		
	EF A79	EM A81	SNR Double-side A83		
	ES A79	EG A81	LR Single-side A83		
	ADF A79	EH A82			
Tool holder type	PTTNR/L □□H/K/M16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	PTTNR/L □□M22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□



External turning tools

Corresponding tool holders of insert **TN** P-type clamping

PTGNR/L
KAPR:90°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PTGNR/L	1616H16	▲	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	2020K16	▲	▲	20	20	125	20	25	20					
	2525M16	▲	▲	25	25	150	25	32	20					
	3232P16	▲	▲	32	32	170	32	40	20					
	2525M22	▲	▲	25	25	150	25	32	30	LEM8×21	T22AP	WH30L	L4	SP4
	3232P22	▲	▲	32	32	170	32	40	30					
	3232P27	▲	▲	32	32	170	32	40	33	LEM8×25	T27AP	WH30L	L5	SP5
4040S27	▲	▲	40	40	250	40	50	33						

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing	For roughing		For heavy machining	For cast iron machining
Inserts shape	XF A78	XM A80	DR Double-side A82	HDR A84	TC A84		
	DF A78	PM A80	DR Single-side A83		Without chipbreaker A84		
	SF A78	DM A81	ER Double-side A83				
	EF A79	EM A81	SNR Double-side A83				
	ES A79	EG A81	LR Single-side A83				
	ADF A79	EH A82					
Tool holder type	PTGNR/L□□H/K/M/P16		TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	PTGNR/L□□M/P22		TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□
	PTGNR/L□□P/S27				TN□□2706□□	TN□□2706□□	TN□□2706□□

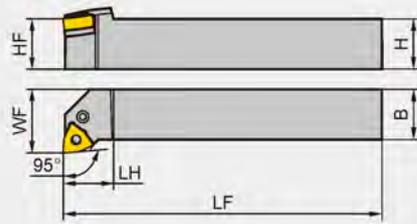


Corresponding tool holders of insert **WN** P-type clamping

PWLNRL
KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	H	B	LF	HF	WF	LH						
PWLNRL/L	1616H06	▲	▲	16	16	100	16	20	20	LEM6×13.4A	W06AP	WH25L	L3	SP3
	2020K06	▲	▲	20	20	125	20	25	20					
	2525M06	▲	▲	25	25	150	25	32	25					
	2020K08	▲	▲	20	20	125	20	25	28	LEM8×21	W08AP	WH30L	L4	SP4
	2525M08	▲	▲	25	25	150	25	32	28					
	3232P08	△	△	32	32	170	32	40	28					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining
Inserts shape	XF A88	XM A90	DR Double-side A92	TC A93
	DF A88	PM A90	SNR Double-side A92	Without chipbreaker A93
	SF A88	DM A91		
	EF A89	EM A91		
	ES A89	EG A91		
	ADF A89	EH A92		
	NF A89	NM A92		
Tool holder type	PWLNRL/□□□H/K/M06	WN□□0604□□	WN□□0604□□	WN□□0604□□
	PWLNRL/□□□K/M/P08	WN□□0804□□	WN□□0804□□	WN□□0804□□

General turning
External turning tools

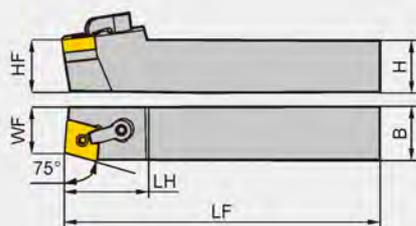
External turning tools

Corresponding tool holders of insert **CN** M-type clamping

MCBNR/L KAPR:75°



R-type shown



General turning

External turning tools

Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MCBNR/L	1616H12	△	△	16	16	100	16	13	32	DM6×25	C12BM	WH30L	C1RD	TM6×17
	2020K12	▲	▲	20	20	125	20	17	32					
	2525M12	▲	▲	25	25	150	25	22	32					
	3232P12	▲	▲	32	32	170	32	27	32	DM6×30				
	2525M16	▲	▲	25	25	150	25	22	40					
	3232P16	▲	▲	32	32	170	32	27	40	DM6×30	C16BM	WH30L	C2RD	TM8×21
	4040R16	△	△	40	40	200	40	35	40					
	3232P19	▲	▲	32	32	170	32	27	40	DM8×30X	C19BM	WH40L	C5RD	TM10×21
4040R19	▲	▲	40	40	200	40	35	40						

▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining	
Inserts shape	XF 	XM 	DR Double-side 	HDR 	TC 	DF 	PM 	DR Single-side 	HPR 	Without chipbreaker
	SF 	DM 	ER Double-side 			EF 	EM 	ER Single-side 		
	ADF 	EG 	SNR Double-side 			NF 	EH 	LR Single-side 		
		NM 								
Tool holder type	MCBNR/L□□H/K/M/P12		CN□□1204□□		CN□□1204□□		CN□□1204□□		CN□□1204□□	
	MCBNR/L□□M/P/R16		CN□□1606□□		CN□□1606□□		CN□□1606□□		CN□□1606□□	
	MCBNR/L□□P/R19		CN□□1906□□		CN□□1906□□		CN□□1906□□		CN□□1906□□	

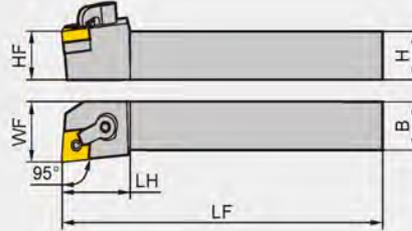


Corresponding tool holders of insert **CN** M-type clamping

MCLNR/L
KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MCLNR/L	1616H12	△	△	16	16	100	16	20	32	DM6×25				
	2020K12	▲	▲	20	20	125	20	25	32		C12BM	WH30L	C1RD	TM6×17
	2525M12	▲	▲	25	25	150	25	32	32	DM6×30				
	3225M12	△	△	32	25	150	32	32	32	DM6×30				
	3232P12	▲	▲	32	32	170	32	40	32					
	2525M16	▲	▲	25	25	150	25	32	38	DM6×30				
	3225M16	△	△	32	25	150	32	32	38		C16BM	WH30L	C2RD	TM8×21
	3232P16	▲	▲	32	32	170	32	40	38	DM6×30				
	4040R16	△	△	40	40	200	40	50	45					
3232P19	▲	▲	32	32	170	32	40	45						
4040R19	▲	▲	40	40	200	40	50	45	DM8×30X	C19BM	WH40L	C5RD	TM10×21	

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining	
Inserts shape	XF	A52	XM	A54	DR Double-side	A56	HDR	A58	TC	A58
	DF	A52	PM	A53	DR Single-side	A57	HPR	A58	Without chipbreaker	A59
	SF	A52	DM	A54	ER Double-side	A57				
	EF	A52	EM	A55	ER Single-side	A57				
	ADF	A53	EG	A55	SNR Double-side	A57				
	NF	A53	EH	A55	LR Single-side	A56				
			NM	A55						
Tool holder type	MCBNR/L□□H/K/M/P12		CN□□1204□□		CN□□1204□□		CN□□1204□□		CN□□1204□□	
	MCBNR/L□□M/P/R16		CN□□1606□□		CN□□1606□□		CN□□1606□□		CN□□1606□□	
	MCBNR/L□□P/R19		CN□□1906□□		CN□□1906□□		CN□□1906□□		CN□□1906□□	

General turning
External turning tools

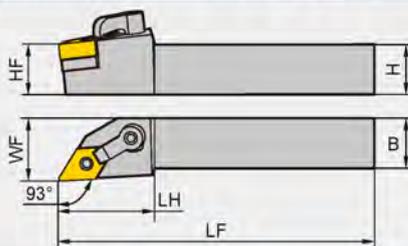
External turning tools

Corresponding tool holders of insert **DN** M-type clamping

MDJNR/L
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MDJNR/L	1616H11	△	△	16	16	100	16	20	32	DM6×25	D11BM	WH20L WH30L	C1RD	TM5×13
	2020K11	▲	▲	20	20	125	20	25	32					
	2525M11	▲	▲	25	25	150	25	32	32					
	3232P11	▲	▲	32	32	170	32	40	32	DM6×30	D15BM	WH30L	C2RD	TM6×19
	2020K15	▲	▲	20	20	125	20	25	38	DM6×25				
	2525M15	▲	▲	25	25	150	25	32	38	DM6×30				
	3225P15	▲	▲	32	25	170	32	32	38	DM6×30				
	3232P15	△	△	32	32	170	32	40	42	DM6×30				
	4040R15	△	△	40	40	200	40	50	45	DM6×25				
	2020K15-3	△	△	20	20	125	20	25	38	DM6×30	TM6×17			
	2525M15-3	△	△	25	25	150	25	32	38	DM6×30				
	3225P15-3	△	△	32	25	170	32	32	38	DM6×30				
3232P15-3	△	△	32	32	170	32	40	42	DM6×30					

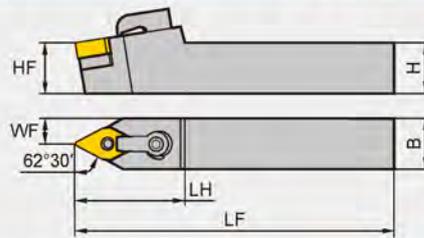
▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A66	TC A66
	DF A60	PM A62	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				
Tool holder type	MDJNR/L□□H/K/M/P11	DN□□1104□□	DN□□1104□□		DN□□1104□□
	MDJNR/L□□K/M/P/R15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	MDJNR/L□□K/M/P15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□

Corresponding tool holders of insert **DN** M-type clamping

MDPNN
KAPR:62°30'



Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Pin
		H	B	LF	HF	WF	LH						
MDPNN	1616H11	△	16	16	100	16	8	35	DM6×25	D11BM	WH20L WH30L	C1RD	TM5×13
	2020K11	▲	20	20	125	20	10	35					
	2525M11	▲	25	25	150	25	12.5	35					
	3232P11	▲	32	32	170	32	16	35	DM6×30	D15BM	WH30L	C2RD	TM6×19
	2020K15	▲	20	20	125	20	10	43	DM6×25				
	2525M15	▲	25	25	150	25	12.5	43	DM6×30				
	3225P15	▲	32	25	170	32	12.5	43	DM6×30				
	3232P15	△	32	32	170	32	16	43					
	4040R15	△	40	40	200	40	20	43	DM6×25				
	2020K15-3	△	20	20	125	20	10	43	DM6×30				
2525M15-3	△	25	25	150	25	12.5	43	DM6×30					
3232R15-3	△	32	32	200	32	16	43	DM6×30	TM6×17				

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF  A60	XM  A63	DR Double-side  A65	HDR  A66	TC  A66
	DF  A60	PM  A62	DR Single-side  A65		Without chipbreaker  A67
	SF  A60	DM  A63	ER Double-side  A65		
	EF  A61	EM  A64	ER Single-side  A66		
	ADF  A61	EG  A64	SNR Double-side  A66		
	NF  A61	NM  A64	LR Single-side  A65		
	NGF  A62				
Tool holder type	MDPNN□□H/K/M/P11	DN□□1104□□	DN□□1104□□		DN□□1104□□
	MDPNN□□K/M/P/R15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	MDPNN□□K/M/P15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□

General turning

External turning tools

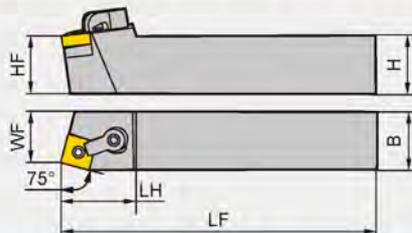
External turning tools

Corresponding tool holders of insert **SN** **M-type clamping**

MSBNR/L
KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin					
	R	L	H	B	LF	HF	WF	LH										
MSBNR/L	1616H12	△	△	16	16	100	16	13	32	DM6×25	S12BM	WH30L	C1RD	TM6×17				
	2020K12	▲	▲	20	20	125	20	17	32									
	2525M12	▲	▲	25	25	150	25	22	32									
	3225P12	▲	▲	32	25	170	32	22	32	DM6×30								
	3232P12	△	△	32	32	170	32	27	32									
	2525M15	▲	▲	25	25	150	25	22	38	DM6×30					S15BM	WH30L	C2RD	TM8×21
	3225P15	△	△	32	25	170	32	22	38									
	3232P15	▲	▲	32	32	170	32	29	38	DM6×30								
	3232P19	▲	▲	32	32	170	32	27	45		DM8×30X	S19BM	WH40L	C5RD				
	4040R19	▲	▲	40	40	200	40	35	45									
	4040R2509	▲	▲	40	40	200	40	35	60	DM10×35X	S25BM							
	4040S2509	▲	▲	40	40	250	40	35	60									

▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77
	EF A68	DM A71	ER Double-side A74		
	ADF A69	EM A71	ER Single-side A75		
	SF A69	EG A72	SNR Double-side A75		
		NM A72	LR Single-side A72		
Tool holder type	MSBNR/L□□H/K/M/P12	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	MSBNR/L□□M/P15	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	MSBNR/L□□P/R19		SN□□1906□□	SN□□1906□□	SN□□1906□□
	MSBNR/L□□R/S2509			SN□□2509□□	SN□□2509□□

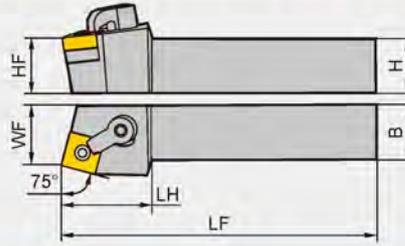


Corresponding tool holders of insert **SN** **M-type clamping**

MSRNR/L
KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin					
	R	L	H	B	LF	HF	WF	LH										
MSRNR/L	1616H12	△	△	16	16	100	16	17	36	DM6×25								
	2020K12	▲	△	20	20	125	20	22	36									
	2525M12	▲	▲	25	25	150	25	27	36									
	3225P12	▲	▲	32	25	170	32	27	36	DM6×30								
	3232P12	△	△	32	32	170	32	35	36									
	2525M15	▲	▲	25	25	150	25	27	40	DM6×30								
	3225P15	△	△	32	25	170	32	27	40									
	3232P15	▲	▲	32	32	170	32	35	40									
	3232P19	▲	▲	32	32	170	32	35	45	DM8×30X					S19BM	WH40L	C5RD	TM10×21
	4040R2509	▲	▲	40	40	200	40	43	60	DM10×35X					S25BM	WH40L WH50L	C6RD	TM12×29
4040S2509	▲	▲	40	40	250	40	43	60										

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77
	EF A68	DM A71	ER Double-side A74		
	ADF A69	EM A71	ER Single-side A75		
	SF A69	EG A72	SNR Double-side A75		
		NM A72	LR Single-side A72		
Tool holder type	MSRNR/L□□H/K/M/P12 SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	MSRNR/L□□M/P15 SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	MSRNR/L□□P19	SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□
	MSRNR/L□□R/S2509		SN□□2509□□	SN□□2509□□	

General turning
External turning tools



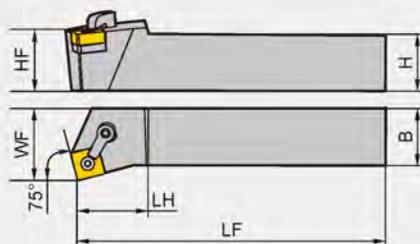
External turning tools

Corresponding tool holders of insert **SN** M-type clamping

MSKNR/L KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MSKNR/L	1616H12	△	△	16	16	100	16	20	32	DM6×20	S12BM	WH30L	C1RD	TM6×17
	2020K12	▲	△	20	20	125	20	25	32	DM6×25				
	2525M12	▲	▲	25	25	150	25	32	32	DM6×30				
	3225P12	▲	▲	32	25	170	32	32	32	DM6×30				
	3232P12	△	△	32	32	170	32	40	32	DM6×30				
	2525M15	▲	▲	25	25	150	25	32	35	DM6×30	S15BM	WH30L	C2RD	TM8×21
	3225P15	△	△	32	25	170	32	32	35	DM6×30				
	3232P15	▲	▲	32	32	170	32	40	38	DM6×30				
	3232P19	▲	▲	32	32	170	32	40	45	DM8×30X	S19BM	WH40L	C5RD	TM10×21
	4040R19	△	△	40	40	200	40	50	45	DM8×30X				
4040S2509	△	△	40	40	250	40	50	50	DM10×35X	S25BM	WH40L WH50L	C6RD	TM12×29	

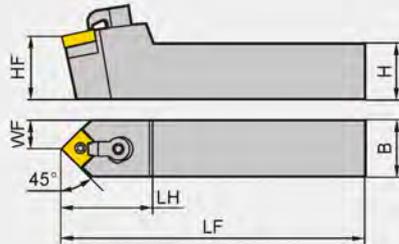
▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining		
Inserts shape	XF A68	XM A70	DR Double-side A73	HDR A75	TC A76						
	DF A68	PM A70	DR Single-side A74	HPR A76	Without chipbreaker A77						
	EF A68	DM A71	ER Double-side A74								
	ADF A69	EM A71	ER Single-side A75								
	SF A69	EG A72	SNR Double-side A75								
		NM A72	LR Single-side A72								
Tool holder type	MSKNR/L□□H/K/M/P12	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	
	MSKNR/L□□M/P15	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	
	MSKNR/L□□P/R19		SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□	
	MSKNR/L□□S2509			SN□□2509□□	SN□□2509□□	SN□□2509□□	SN□□2509□□	SN□□2509□□	SN□□2509□□	SN□□2509□□	

Corresponding tool holders of insert **SN** M-type clamping

MSDNN
KAPR:45°



Type	Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
		H	B	LF	HF	WF	LH						
MSDNN	2020K12	▲	20	20	125	20	10	35	DM6×25	S12BM	WH30L	C1RD	TM6×17
	2525M12	▲	25	25	150	25	12.5	35	DM6×30				
	3232P12	▲	32	32	170	32	16	35					
	2525M15	▲	25	25	150	25	12.5	42	DM6×30	S15BM	WH30L	C2RD	TM8×21
	3225P15	△	32	25	170	32	12.5	42					
	3232P15	▲	32	32	170	32	16	42					

▲ Stock available △ Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF  A68	XM  A70	DR Double-side  A73	HDR  A75	TC  A76
	DF  A68	PM  A70	DR Single-side  A74	HPR  A76	Without chipbreaker  A77
	EF  A68	DM  A71	ER Double-side  A74		
	ADF  A69	EM  A71	ER Single-side  A75		
	SF  A69	EG  A72	SNR Double-side  A75		
		NM  A72	LR Single-side  A72		
Tool holder type	MSDNN□□K/M/P12	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	MSDNN□□M/P15	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□



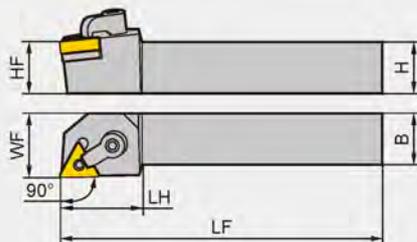
External turning tools

Corresponding tool holders of insert **TN** M-type clamping

MTGNR/L KAPR:90°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MTGNR/L	1616H16	△	△	16	16	100	16	20	33	DM6×25	T16BM	WH20L WH30L	C1RD	TM5×13
	2020K16	▲	▲	20	20	125	20	25	33	DM6×25				
	2525M16	▲	▲	25	25	150	25	32	33	DM6×30				
	3225P16	▲	▲	32	25	170	32	32	33	DM6×30				
	3232P16	△	△	32	32	170	32	40	33	DM6×30	T22BM	WH30L	C2RD	TM6×17
	2525M22	▲	▲	25	25	150	25	32	35	DM6×30				
	3225P22	▲	▲	32	25	170	32	32	35	DM6×30				
	3232P22	△	△	32	32	170	32	40	40	DM6×30				

▲ Stock available △ Make-to-order

Applicable inserts

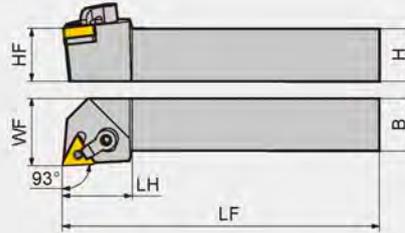
Application	For finishing		For semi-finishing	For roughing		For heavy machining	For cast iron machining
Inserts shape	XF A78	XM A80	DR Double-side A82	HDR A84	TC A84		
	DF A78	PM A80	DR Single-side A83		Without chipbreaker A84		
	SF A78	DM A81	ER Double-side A83				
	EF A79	EM A81	SNR Double-side A83				
	ES A79	EG A81	LR Single-side A83				
	ADF A79	EH A82					
Tool holder type	MTGNR/L□□ H/K/M/P16		TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	MTGNR/L□□M/P22		TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□

Corresponding tool holders of insert **TN** M-type clamping

MTJNR/L
KAPR:93°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin
		R	L	H	B	LF	HF	WF	LH					
MTJNR/L	2020K16	▲	▲	20	20	125	20	25	33	DM6×25				
	2525M16	▲	▲	25	25	150	25	32	33					
	3225P16	▲	▲	32	25	170	32	32	33					
	2525M22	▲	▲	25	25	150	25	32	35	DM6×30	T22BM	WH30L	C2RD	TM6×17
	3225P22	▲	▲	32	25	170	32	32	35					

▲Stock available △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining		
Inserts shape	XF		XM	DR Double-side	HDR	TC	Without chipbreaker				
	DF	PM	DR Single-side								
	SF	DM	ER Double-side								
	EF	EM	SNR Double-side								
	ES	EG	LR Single-side								
	ADF	EH									
Tool holder type	MTJNR/L□□ K/MP16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	
	MTJNR/L□□M/P22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	

External turning tools

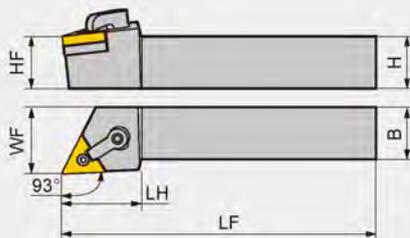
Corresponding tool holders of insert **TN** M-type clamping

MTJNR/L-Z

KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MTJNR/L-Z	1616H16	△	△	16	16	100	16	20	32	DM6×25	T16BM	WH20L WH30L	C1RD	TM5×13
	2020K16	▲	▲	20	20	125	20	25	32	DM6×25				
	2525M16	▲	▲	25	25	150	25	32	32	DM6×30				
	3225P16	▲	▲	32	25	170	32	32	32	DM6×30				
	3232P16	△	△	32	32	170	32	40	32	DM6×30				
	2525M22	▲	▲	25	25	150	25	32	35	DM6×30				
	3225P22	▲	▲	32	25	170	32	32	35	DM6×30	T22BM	WH30L	C2RD	TM6×17
	3232P22	△	△	32	32	170	32	40	40					
	4040R22	△	△	40	40	200	40	50	40					

▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing	For roughing		For heavy machining	For cast iron machining
Inserts shape	XF  A78	XM  A80	DR Double-side  A82	HDR  A84	TC  A84	Without chipbreaker	
	DF  A78	PM  A80	DR Single-side  A83		 A84		
	SF  A78	DM  A81	ER Double-side  A83				
	EF  A79	EM  A81	SNR Double-side  A83				
	ES  A79	EG  A81	LR Single-side  A83				
	ADF  A79	EH  A82					
Tool holder type	MTJNR/L-Z □□ H/K/M/P16		TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	MTJNR/L-Z □□ M/P/R22		TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□

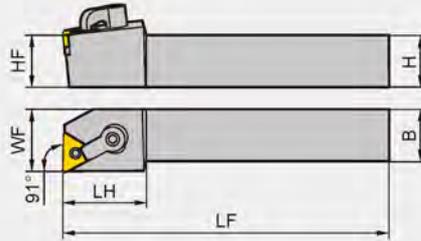


Corresponding tool holders of insert **TN** M-type clamping

MTFNR/L
KAPR:91°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Pin
	R	L	H	B	LF	HF	WF	LH						
MTFNR/L	1616H16	△	△	16	16	100	16	20	32	DM6×25	T16BM	WH20L WH30L	C1RD	TM5×13
	2020K16	▲	△	20	20	125	20	25	32	DM6×25				
	2525M16	▲	▲	25	25	150	25	32	32	DM6×30				
	3225P16	▲	△	32	25	170	32	32	32	DM6×30				
	3232P16	△	△	32	32	170	32	40	32	DM6×30	T22BM	WH30L	C2RD	TM6×17
	2525M22	▲	▲	25	25	150	25	32	36	DM6×30				
	3225P22	▲	△	32	25	170	32	32	36	DM6×30				
	3232P22	△	△	32	32	170	32	40	36	DM6×30				

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining	
Inserts shape	XF 	XM 	DR Double-side 	HDR 	TC 					
	DF 	PM 	DR Single-side 			Without chipbreaker 				
	SF 	DM 	ER Double-side 							
	EF 	EM 	SNR Double-side 							
	ES 	EG 	LR Single-side 							
	ADF 	EH 								

Tool holder type	MTFNR/L□□ H/K/M/P16	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	MTFNR/L□□M/P22	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□

General turning

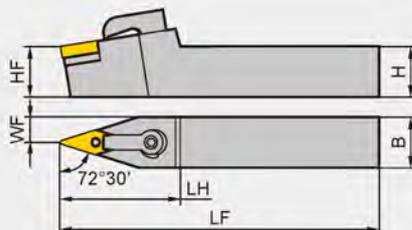
External turning tools



External turning tools

Corresponding tool holders of insert **VN** M-type clamping

MVVNN
KAPR:72°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
		H	B	LF	HF	WF	LH						
MVVNN	1616H16	△	16	16	100	16	8	45	DM6×25	V16BM	WH20L WH30L	C3RD	TM5×13
	2020K16	▲	20	20	125	20	10	45	DM6×25				
	2525M16	▲	25	25	150	25	12.5	45	DM6×30				
	3225P16	▲	32	25	170	32	12.5	45	DM6×30				
	3232P16	▲	32	32	170	32	16	45					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining
Inserts shape	XF  A85	XM  A86	SNR  A87	TC  A87
	DF  A85	PM  A86		
	EF  A85	DM  A86		
	ADF  A85	EM  A87		
	SF  A86	EG  A87		
	NF  A85	NM  A87		
	NGF  A86			

Tool holder type

MVVNN□□ H/K/M/P16

VN□□1604□□

VN□□1604□□

VN□□1604□□

VN□□1604□□

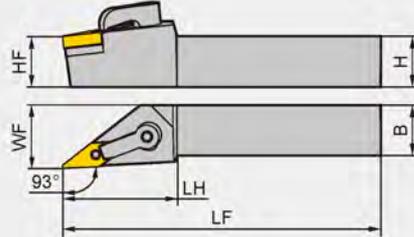


Corresponding tool holders of insert **VN** M-type clamping

MVJNR/L
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MVJNR/L	1616K16	△	△	16	16	125	16	20	45	DM6×25	V16BM	WH20L WH30L	C3RD	TM5×13
	2020K16	▲	▲	20	20	125	20	25	45	DM6×25				
	2525M16	▲	▲	25	25	150	25	32	45	DM6×30				
	3225P16	▲	▲	32	25	170	32	32	45	DM6×30				
	3232P16	▲	▲	32	32	170	32	40	45					
	4040P16	△	△	40	40	170	40	50	65					

▲ Stock available △ Make-to-order

General turning
External turning tools

Applicable inserts

Application	For finishing		For semi-finishing		For roughing	For cast iron machining
Inserts shape	XF		XM		SNR	TC
	DF		PM			
	EF		DM			
	ADF		EM			
	SF		EG			
	NF		NM			
	NGF					

Tool holder type	MVJNR/L□□ K/M/P16	VN□□1604□□	VN□□1604□□	VN□□1604□□	VN□□1604□□
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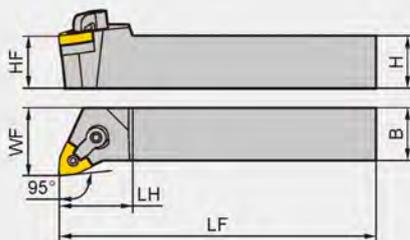
External turning tools

Corresponding tool holders of insert **WN** M-type clamping

MWLNRI/L
KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Pin	
	R	L	H	B	LF	HF	WF	LH						
MWLNRI/L	1616H06	△	△	16	16	100	16	20	28	DM6×25				
	2020K06	▲	▲	20	20	125	20	25	30	DM6×25	W06BM	WH20L WH30L	C1RD	TM5×13
	2525M06	▲	▲	25	25	150	25	32	30	DM6×30				
	1616H08	△	△	16	16	100	16	20	30	DM6×25				
	2020K08	▲	▲	20	20	125	20	25	30	DM6×25				
	2525M08	▲	▲	25	25	150	25	32	35	DM6×30				
	3525P08	▲	▲	32	25	170	32	32	35	DM6×30	W08BM	WH30L	C1RD	TM6×17
	3232P08	▲	▲	32	32	170	32	40	35					
4040R08	△	△	40	40	200	40	50	35						

▲ Stock available △ Make-to-order

Applicable inserts

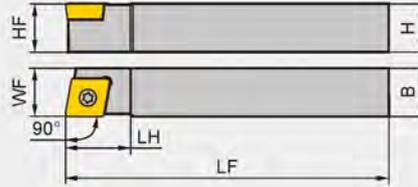
Application	For finishing	For semi-finishing	For roughing	For cast iron machining
Inserts shape	XF A88	XM A90	DR Double-side A92	TC A93
	DF A88	PM A90	SNR Double-side A92	Without chipbreaker A93
	SF A88	DM A91		
	EF A89	EM A91		
	ES A89	EG A91		
	ADF A89	EH A92		
	NF A89	NM A92		
Tool holder type	MWLNRI/L□□H/K/M06	WN□□0604□□	WN□□0604□□	WN□□0604□□
	MWLNRI/L□□H/K/M/P/R08	WN□□0804□□	WN□□0804□□	WN□□0804□□

Corresponding tool holders of insert **CC** S-type clamping

SCACRIL
KAPR:90°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench
	R	L	H	B	LF	HF	WF	LH			
SCACR/L	0808F06	△	△	8	8	80	8	8	16	I60M2.5×6.5	WT071P
	1010H06	▲	△	10	10	100	10	10	16		
	1212H06	△	△	12	12	100	12	12	16		
	1212H09	▲	▲	12	12	100	12	12	16	I60M3.5×8	WT151P
	1616H09	△	△	16	16	100	16	16	16		

▲Stock available △Make-to-order

General turning
External turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For cast iron machining	For Al machining
Inserts shape	SF  A95	XF  A95	XM  A96	HR  A98	TC  A98	LH  A99
		HF  A95	HM  A97			LC  A99
		EF  A96	EF  A97			
		AHF  A96	EG  A97			
Tool holder type	SCACR/L□□H/F06	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX 0602□□
	SCACR/L□□H09	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX 09T3□□



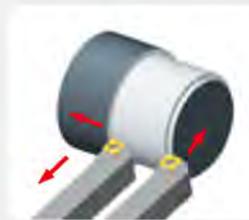
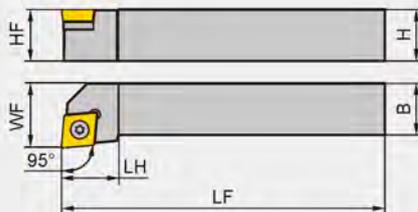
External turning tools

Corresponding tool holders of insert **CC** S-type clamping

SCLCR/L KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SCLCR/L	0808F06	▲	△	08	08	80	08	10	12	I60M2.5×6.5	---	---	WT071P
	1010F06	▲	▲	10	10	80	10	12	12				
	1212H06	△	△	12	12	100	12	16	12				
	1616H06	△	△	16	16	100	16	20	16				
	1212H09	▲	▲	12	12	100	12	16	16	I60M3.5×8	---	---	WT151P
	1616H09	▲	▲	16	16	100	16	20	16				
	2020K09	△	△	20	20	125	20	25	25				
	2525M09	△	△	25	25	150	25	32	25				
	2525M12	▲	▲	25	25	150	25	32	25	I60M4×11X	C12BS	SM6×10XA	WT151P WH40L
	3225M12	▲	▲	32	25	150	32	32	25				

▲Stock available △Make-to-order

Applicable inserts

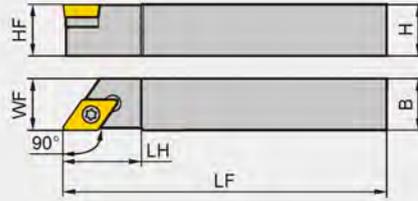
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For cast iron machining	For AI machining
Inserts shape	SF A95	XF A95	XM A96	HR A98	TC A98	LH A99
		HF A95	HM A97			LC A99
		EF A96	EF A97			
		AHF A96	EG A97			
Tool holder type	SCLCR/L□□H/F06	CC□□ 0602□□	CC□□ 0602□□	CC□□ 0602□□	CC□□ 0602□□	CCGX 0602□□
	SCLCR/L□□H/K/M09	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CCGX 09T3□□
	SCLCR/L□□K/M12		CC□□ 1204□□	CC□□ 1204□□	CC□□ 1204□□	CCGX 1204□□

Corresponding tool holders of insert **DC** S-type clamping

SDACRIL
KAPR:90°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SDACR/L	0808K07	△	△	8	8	125	8	8	15	I60M2.5×6.5	---	---	WT071P
	1010K07	△	△	10	10	125	10	10	15		---	---	WT151P
	1212K07	△	△	12	12	125	12	12	15		---	---	WT151P
	1212K11	△	△	12	12	125	12	12	24	I60M3.5×8	---	---	WT151P
	1616K11	△	△	16	16	125	16	16	24	I60M3.5×12	D11BS	SM5×8.65XA	WT151P WH35L
	2020K11	△	△	20	20	125	20	20	24		---	---	---
	2525M11	△	△	25	25	150	25	25	24		---	---	---

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining
Inserts shape	SF 	XF 	XM 	HR 	LH
		HF 	HM 		LC
		EF 	EM 		
		AHF 			
Tool holder type	SDACR/L□□K07	DC□□ 0702□□	DC□□ 0702□□	DC□□ 0702□□	DCGX 0702□□
	SDACR/L□□K/M11	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DCGX 11T3□□

General turning
External turning tools



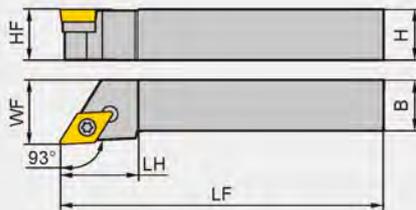
External turning tools

Corresponding tool holders of insert DC S-type clamping

SDJCR/L
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SDJCR/L	0808F07	△	△	8	8	80	8	10	15	I60M2.5×6.5	—	—	WT071P
	1010F07	▲	△	10	10	80	10	12	15				
	1212H07	▲	▲	12	12	100	12	16	15				
	1414H07	△	△	14	14	100	14	18	15				
	1616H07	▲	▲	16	16	100	16	20	18				
	2020K07	△	△	20	20	125	20	25	24				
	2525M07	△	△	25	25	150	25	32	28				
1212K11	△	△	12	12	125	12	16	22	I60M3.5×10	D11BS	SM5×7XA	WT151P WH35L	
1616K11	▲	▲	16	16	125	16	20	22	I60M3.5×12		SM5×8.65XA		
2020K11	▲	▲	20	20	125	20	25	24					
2525M11	▲	▲	25	25	150	25	32	24					

▲Stock available △Make-to-order

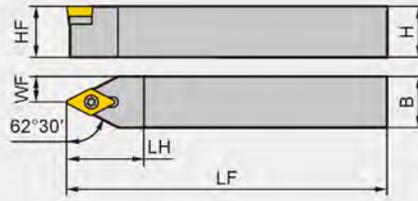
Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining
Inserts shape	SF A100	XF A100	XM A101	HR A102	LH A103
		HF A100	HM A102		LC A103
		EF A101	EM A102		
		AHF A101			
Tool holder type	SDJCR/L□□F/H/K/M07	DC□□0702□□	DC□□0702□□	DC□□0702□□	DCGX0702□□
	SDJCR/L□□K/M11	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX11T3□□



Corresponding tool holders of insert **DC** S-type clamping

SDNCN
KAPR:62°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		H	B	LF	HF	WF	LH					
SDNCN	0808F07	△	8	8	80	8	4	20	I60M2.5×6.5	---	---	WT07IP
	1010F07	▲	10	10	80	10	5	20				
	1212H07	▲	12	12	100	12	6	20				
	1616H07	△	16	16	100	16	8	20				
	2020K07	△	20	20	125	20	10	25				
	2525M07	△	25	25	150	25	12.5	30				
	1616K11	▲	16	16	125	16	8	30	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
	2020K11	▲	20	20	125	20	10	30				
	2525M11	▲	25	25	150	25	12.5	30				
	3225M11	△	32	25	150	32	12.5	30				
3232P11	△	32	32	170	32	16	30					

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining
Inserts shape	SF  A100	XF  A100	XM  A101	HR  A102	LH  A103
		HF  A100	HM  A102		LC  A103
		EF  A101	EM  A102		
		AHF  A101			
Tool holder type	SDNCN□□F/H/K/M07	DC□□0702□□	DC□□0702□□	DC□□0702□□	DCGX 0702□□
	SDNCN□□K/M/P11	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX 11T3□□

General turning
External turning tools



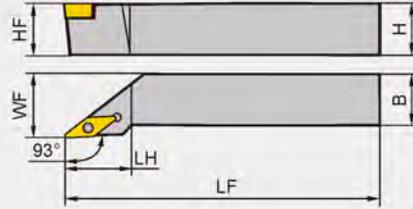
External turning tools

Corresponding tool holders of insert **VB** S-type clamping

SVJBRIL
KARP:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SVJBR/L	1212H11	▲	▲	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT071P
	1616H11	▲	▲	16	16	100	16	20	27				
	2020K11	▲	▲	20	20	125	20	25	25				
	2525M11	▲	▲	25	25	150	25	32	30				
	1616H16	▲	▲	16	16	100	16	20	35	I60M3.5×12	V16BS	SM5×8.65XA	WT151P WH35L
	2020K16	▲	▲	20	20	125	20	25	40				
	2525M16	▲	▲	25	25	150	25	32	40				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing
Inserts shape	SF A117	XF A117	XM A118	HR A119
		HF A117	HM A119	SNR A119
		NF A118	EM A118	
		EF A117		
		NGF A118		
		AHF A118		
Tool holder type	SVJBR/L□□H/K/M11	VB□□1103□□	VB□□1103□□	VB□□1103□□
	SVJBR/L□□H/K/M16	VB□□1604□□	VB□□1604□□	VB□□1604□□

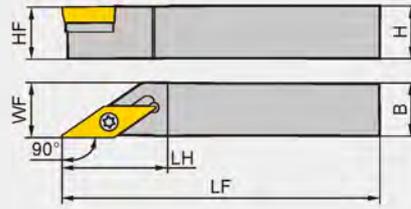


Corresponding tool holders of insert **VB** S-type clamping

SVABRIL
KAPR:90°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	H	B	LF	HF	WF	LH				
SVABR/L	1010F11	△	△	10	10	80	10	10	25	I60M2.5×6.5	--	--	WT07IP
	1616H16	△	△	16	16	100	16	16	32	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	2020K16	△	△	20	20	125	20	20	32				
	2525M16	△	△	25	25	150	25	25	38				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing
Inserts shape	SF A117	XF A117	XM A118	HR A119
		HF A117	HM A119	SNR A119
		NF A118	EM A118	
		EF A117		
		NGF A118		
		AHF A118		
Tool holder type	SVABR/L□□F11 VB□□1103□□		SVABR/L□□H/K/M16 VB□□1604□□ VB□□1604□□ VB□□1604□□	

General turning

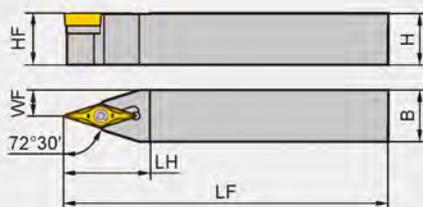
External turning tools



External turning tools

Corresponding tool holders of insert **VB** S-type clamping

SVVBN KAPR:72°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		H	B	LF	HF	WF	LH					
SVVBN	1212H11	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	16	16	100	16	8	25				
	2020K11	▲	20	20	125	20	10	30				
	2525M11	△	25	25	150	25	12.5	35				
	1616H16	▲	16	16	100	16	8	35	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	20	20	125	20	10	35				
	2525M16	▲	25	25	150	25	12.5	35				

▲Stock available △Make-to-order

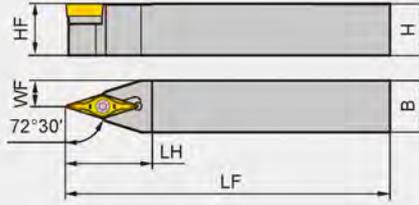
Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing
Inserts shape	SF  A117	XF  A117	XM  A118	HR  A119
		HF  A117	HM  A119	SNR  A119
		NF  A118	EM  A118	
		EF  A117		
		NGF  A118		
		AHF  A118		
Tool holder type	SVJBR/L□□H/K/M11	VB□□1103□□	VB□□1103□□	VB□□1103□□
	SVJBR/L□□H/K/M16		VB□□1604□□	VB□□1604□□



Corresponding tool holders of insert **VC** S-type clamping

SVVCN
KAPR:72°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		H	B	LF	HF	WF	LH					
SVVCN	1212H11	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	16	16	100	16	8	27				
	2020K11	▲	20	20	125	20	10	30				
	2525M11	△	25	25	150	25	12.5	38				
	1616H16	▲	16	16	100	16	8	33	I60M3.5×12	V16BSC	SM5×8.65XA	WT15IP WH35L
	2020K16	▲	20	20	125	20	10	33				
	2525M16	▲	25	25	150	25	12.5	38				

▲Stock available △Make-to-order

General turning

External turning tools

Applicable inserts

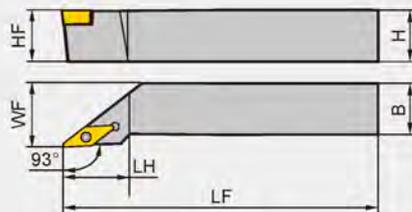
Application	For extra finishing	For finishing	For AI machining	
Inserts shape	SF  A114	XF  A114	LH  A116	
		NF  A114	LC  A116	
		NGF  A114		
		AHF  A114		
Tool holder type	SVVCN□□H/K/M11	VC□□1103□□	VC□□1103□□	VCGX1103□□
	SVVCN□□H/K/M16	VC□□1604□□	VC□□1604□□	VCGX1604□□

Corresponding tool holders of insert **VC** S-type clamping

SVJCR/L KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Shim	Shim screw	Wrench
	R	L	H	B	LF	HF	WF	LH					
SVJCR/L	1212H11	△	△	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT071P
	1616H11	▲	▲	16	16	100	16	20	27				
	2020K11	▲	▲	20	20	125	20	25	27				
	2525M11	▲	▲	25	25	150	25	32	27				
	1616H16	▲	▲	16	16	100	16	20	36	I60M3.5×12	V16BSC	SM5×8.65XA	WT151P WH35L
	2020K16	▲	▲	20	20	125	20	25	41				
	2525M16	▲	▲	25	25	150	25	32	41				

▲Stock available △Make-to-order

Applicable inserts

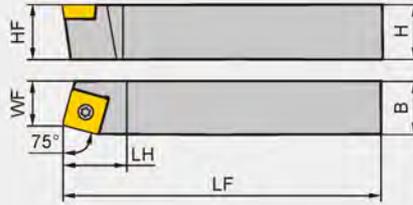
Application	For extra finishing	For finishing	For AI machining
Inserts shape	SF  A114	XF  A114	LH  A116
		NF  A114	LC  A116
		NGF  A114	
		AHF  A114	
Tool holder type	SVVCN□□H/K/M11 VC□□1103□□	VC□□1103□□	VCGX1103□□
	SVVCN□□H/K/M16	VC□□1604□□	VCGX1604□□

Corresponding tool holders of insert **SC** S-type clamping

SSBCR/L
KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SSBCR/L	1212H09	▲	▲	12	12	100	12	9	16	I60M3.5×8	---	---	WT15IP
	1616H09	▲	▲	16	16	100	16	13	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	2020K09	△	△	20	20	125	20	17	20				
	2525M09	△	△	25	25	150	25	22	20				
	2020K12	▲	▲	20	20	125	20	17	25	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	2525M12	△	△	25	25	150	25	22	25				

▲Stock available △Make-to-order

General turning

External turning tools

Applicable inserts

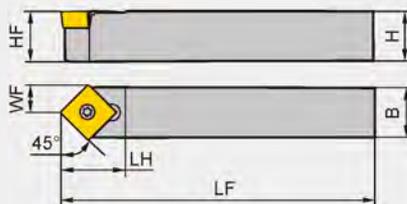
Application	For finishing	For semi-finishing	For roughing	For AI machining
Inserts shape	XF A106	XM A107	HR A108	LH A108
	HF A106	HM A107		LC A108
	EF A106	EM A107		
	AHF A106			
Tool holder type	SSBCR/L□□H/K/M09 SC□□09T3□□		SC□□09T3□□	SC□□09T3□□ SCGX09T3□□
	SSBCR/L□□K/M12		SC□□1204□□	SC□□1204□□ SCGX1204□□



External turning tools

Corresponding tool holders of insert **SC** S-type clamping

SSDCN
KAPR:45°



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		H	B	LF	HF	WF	LH					
SSDCN	1212H09	▲	12	12	100	12	6	16	I60M3.5×8	---	---	WT15IP
	1616H09	▲	16	16	100	16	8	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	2020K09	△	20	20	125	20	10	20				
	2525M09	△	25	25	150	25	12.5	20	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	2525M12	▲	25	25	150	25	12.5	24				

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For AI machining
Inserts shape	XF  A106	XM  A107	HR  A108	LH  A108
	HF  A106	HM  A107		LC  A108
	EF  A106	EM  A107		
	AHF  A106			
Tool holder type	SSDCN□□H/K/M09 SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□
	SSDCN□□M12	SC□□1204□□	SC□□1204□□	SCGX1204□□

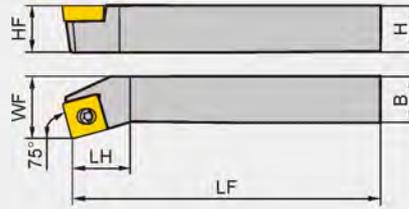


Corresponding tool holders of insert **SC** S-type clamping

SSKCRIL
KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SSKCR/L	1212H09	△	△	12	12	100	12	16	16	I60M3.5×8	---	---	WT151P
	1616H09	▲	△	16	16	100	16	20	16	I60M3.5×12	S09BS	SM5×8.65XA	WT151P WH35L
	2020K09	△	△	20	20	125	20	25	20				
	2525M09	△	△	25	25	150	25	32	20	I60M4×11X	S12BS	SM6×10XA	WT151P WH40L
	2020K12	△	△	20	20	125	20	25	22				
	2525M12	△	△	25	25	150	25	32	22				

▲Stock available △Make-to-order

General turning

External turning tools

Applicable inserts

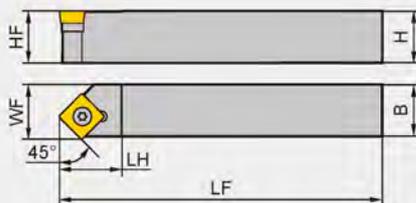
Application	For finishing	For semi-finishing	For roughing	For AI machining
Inserts shape	XF  A106	XM  A107	HR  A108	LH  A108
	HF  A106	HM  A107		LC  A108
	EF  A106	EM  A107		
	AHF  A106			
Tool holder type	SSKCR/L□□H/K/M09	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□
	SSKCR/L□□K/M12		SC□□1204□□	SC□□1204□□

Corresponding tool holders of insert **SC** S-type clamping

SSSCRIL KAPR:45°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
SSSCR/L	1212H09	△	△	12	12	100	12	13	16	I60M3.5×8	---	---	WT15IP
	1616H09	▲	▲	16	16	100	16	17	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	2020K09	△	△	20	20	125	20	21	25				
	2525M09	△	△	25	25	150	25	26	25				
	2020K12	▲	▲	20	20	125	20	21	24	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	2525M12	△	△	25	25	150	25	26	28				

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For AI machining	
Inserts shape	XF A106	XM A107	HR A108	LH A108	
	HF A106	HM A107		LC A108	
	EF A106	EM A107			
	AHF A106				
Tool holder type	SSSCR/L□□H/K/M09	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SCGX09T3□□
	SSSCR/L□□K/M12		SC□□1204□□	SC□□1204□□	SCGX1204□□

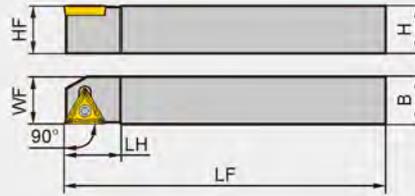


Corresponding tool holders of insert **TC** S-type clamping

STACR/L
KAPR:90°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Wrench	---	---	
	R	L	H	B	LF	HF	WF	LH			---	---	
STACR/L	1010K11	△	△	10	10	100	10	10	12	I60M2.5×6.5	WT07IP	---	---
	1212F11	△	△	12	12	80	12	12	14			---	---
	1616K11	△	△	16	16	100	16	16	16			---	---

▲Stock available △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For AI machining	
Inserts shape	XF A109	XM A111	HR A112	LH A113	
	HF A109	HM A112		LC A113	
	EF A109	EM A111			
	AHF A111	EG A111			
Tool holder type	STACR/L □□K/F11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□
	STFCR/L □□H/K/M11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□
	STFCR/L □□K/M16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□



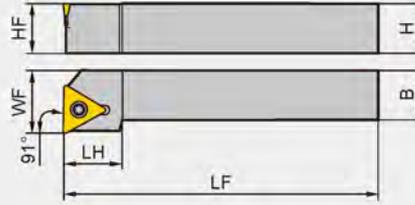
External turning tools

Corresponding tool holders of insert **TC** S-type clamping

STFCRIL
KAPR:91°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
STFCR/L	1212H11	▲	▲	12	12	100	12	16	14	I60M2.5×6.5	---	---	WT071P
	1616H11	▲	▲	16	16	100	16	20	14				
	2020K11	△	△	20	20	125	20	25	20				
	2525M11	△	△	25	25	150	25	32	20				
	1616K16	▲	▲	16	16	125	16	20	20	I60M3.5×12	T16BS	SM5×8.65XA	WT151P WH35L
	2020K16	▲	▲	20	20	125	20	25	25				
	2525M16	△	△	25	25	150	25	32	25				

▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	
Inserts shape	XF A109	XM A111	HR A112	LH A113	
	HF A109	HM A112		LC A113	
	EF A109	EM A111			
	AHF A111	EG A111			
Tool holder type	STACR/L□□K/F11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□
	STFCR/L□□H/K/M11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□
	STFCR/L□□K/M16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□

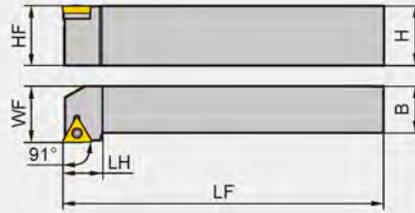


Corresponding tool holders of insert **TC** S-type clamping

STGCR/L
KAPR:91°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	H	B	LF	HF	WF	LH					
STGCR/L	0808F09	▲	△	08	08	80	8	10	12	I60M2.2×5.5	---	---	WT06IP
	1010F09	▲	▲	10	10	80	10	12	12				
	1212H09	△	△	12	12	100	12	16	12				
	1212H11	▲	▲	12	12	100	12	16	16	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	▲	16	16	100	16	20	20				
	2020K11	△	△	20	20	125	20	25	20				
	2525M11	△	△	25	25	150	25	32	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
	1616K16	△	△	16	16	125	16	20	20				
	2020K16	▲	▲	20	20	125	20	25	20				
2525M16	▲	▲	25	25	150	25	32	20					

▲Stock available △Make-to-order

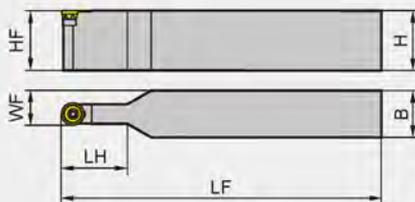
Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining
Inserts shape	SF A109	XF A109	XM A111	HR A112	LH A113
		HF A109	HM A112		LC A113
		EF A109	EM A111		
		AHF A111	EG A111		
Tool holder type	STGCR/L□□F/H09	TC□□0902□□	TC□□0902□□	TC□□0902□□	TC□□0902□□
	STGCR/L□□H/K/M11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TC□□1102□□
	STGCR/L□□K/M16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□

General turning
External turning tools

Corresponding tool holders of insert **RC** S-type clamping

SRDCN



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		H	B	LF	HF	WF	LH					
SRDCN	1616H08	△	16	16	100	16	12	16	I60M3×7	---	---	WT09IP
	2020K08	△	20	20	125	20	14	16				
	2525M08	△	25	25	150	25	16.5	16				
	2020K10	△	20	20	125	20	15	20	I60M3.5×10	---	---	WT15IP
	2525M10	▲	25	25	150	25	17.5	25				
	2525M12	▲	25	25	150	25	18.5	35	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	3232P12	△	32	32	170	32	22	35				
	3225P16	▲	32	25	170	32	20.5	35	I60M4×15X	R16BS	SM6×10XA	WT15IP WH40L
	4040S16	△	40	40	250	40	28	40				

▲Stock available △Make-to-order

Applicable inserts

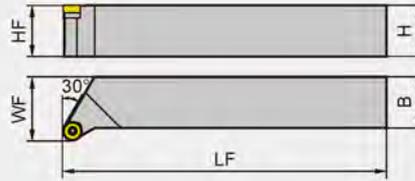
Application	For semi-finishing	For roughing	For AI machining
Inserts shape			LH
Tool holder type	SRDCN□□K/M/H08	SRDCN□□K/M10	SRDCN□□M/P12
	RCMT0803MO	RCMT10T3MO	RCMT1204MO
	RCMT1606MO	RCMT1606MO	

Corresponding tool holders of insert **RC** S-type clamping

SRGCR/L



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
	R	L	H	B	LF	HF	WF					
SRGCR/L	1616H08	△	△	16	16	100	16	20	I60M3×7	---	---	WT09IP
	2020K08	△	△	20	20	125	20	25				
	2525M08	△	△	25	25	150	25	32				
	1616H10	△	△	16	16	100	16	20	I60M3.5×10	---	---	WT15IP
	2020K10	▲	▲	20	20	125	20	25				
	2525M10	▲	▲	25	25	150	25	32				
	2020K12	▲	△	20	20	125	20	27	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	2525M12	▲	▲	25	25	150	25	32				
3232P16	▲	△	32	32	170	32	40	I60M4×15X	R16BS	SM6×10XA	WT15IP WH40L	

▲ Stock available △ Make-to-order

Applicable inserts

Application	For semi-finishing	For roughing	For AI machining
Inserts shape	 A104	 A104	LH  A104
Tool holder type	SRGCR/L□□H/K/M08 RCMT0803MO	RCMT0803MO	RCGX0803MO-LH
	SRGCR/L□□H/K/M10 RCMT10T3MO	RCMT10T3MO	
	SRGCR/L□□K/M12 RCMT1204MO	RCMT1204MO	
	SRGCR/L□□P16 RCMT1606MO	RCMT1606MO	

General turning

External turning tools

How to select internal turning tools

How to select internal turning tools

Explanation of internal turning tools detailed table

● Listed according to clamping types.

● Approach angle of tools

● Tools type
The first 4 letters in the type description stands for tool shape and applicatio.

● Insert type

● Specification chart

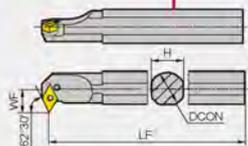
● Application chart
The arrow shows suitable applications such as internal turning, profiling and end turning, etc.

Corresponding tool holders of insert DN□□ P-type clamping

PDPNRIL
KAPR:62°30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S32T-PDPNR/L15-3	▲	▲	40	32	30	300	22	LEM8×21	WH-30L	L4	D15AP	SP4
S40U-PDPNR/L15-3	▲	▲	50	40	38	350	27	LEM8×21	WH-30L	L4B	D15AP	SP4
S32T-PDPNR/L15	△	△	40	32	30	300	22	LEM8×21	WH-30L	L4B	D15AP	SP4
S40U-PDPNR/L15	△	△	50	40	38	350	27	LEM8×21	WH-30L	L4B	D15AP	SP4

▲ Stock available △ Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A65	TC A65
	DF A60	PM A63	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				
Tool holder type	□□-PDPNR/L15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□
	□□-PDPNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

● Tool holders with oil hole

● Products specification
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

● Applicable inserts

Including applications of inserts, reference page, insert shape and corresponding tool holders.



TURNING



Internal turning tools

Internal turning tools overview ● A191

Internal turning tools code key ● A192-A193

Detailed table of internal turning tools ● A194-A221

Internal turning tool holders by P-type clamping ● A194-A199

Internal turning tool holders by S-type clamping ● A200-A215

Damping internal turning tool holders and their features ● A216-A221



Internal turning tools





Internal turning tools overview

General turning

Internal turning tools overview

Name	Feature	62°30'	75°	90°	91°	93°	93°	93°	95°	107°30'
P-type internal turning tools	<ul style="list-style-type: none"> The minimum machining diameter is 20mm. Applicable inserts are economic negative inserts. Hole clamping 	 A195	 A197	 A198			 A196		 A194	
									 A199	
S-type internal turning tools	<ul style="list-style-type: none"> The minimum machining diameter is 10mm. Applicable inserts are 5°, 7° and 11° positive inserts. Screw clamping. 		 A204	 A214	 A205	 A213	 A202	 A203		 A201
							 A212		 A200	 A211
							 A207		 A215	 A208
							 A209		 A210	 A206
Damping internal turning tools	<ul style="list-style-type: none"> The minimum diameter can be machined is 12mm. Applicable inserts are 7°, 11° positive inserts. Good Performance on reducing shake. 					 A220	 A219		 A217	 A218
							 A221			 A221

Internal turning tools code key

General turning

Internal turning tools code key

Type of tool holder	
Code	Type
A	Steel tool holder with oil-hole
C	Cemented carbide tool holder
E	Cemented carbide tool holder with oil hole
S	Steel tool holder
X	Special inserts applied

Diameter of tool holder	
Code	Diameter
08	08
10	10
16	16
20	20
25	25
32	32
40	40
50	50

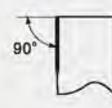
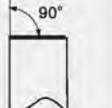
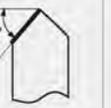
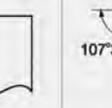
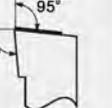
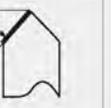
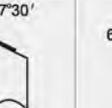
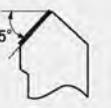
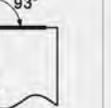
Length of tool holder	
Code	Length
H	100
K	125
M	150
N	160
Q	180
R	200
S	250
T	300
U	350
V	400

Clamping system
 P-Hole clamping
 M-Top and hole clamping
 S-Screw on
 C-Top clamping

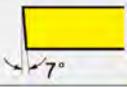
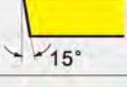
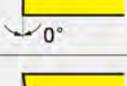
Inserts shape	
 80°	 55°
C	D
 R	 S
 60°	 35°
T	V
 80°	W

S 16 R - S D U

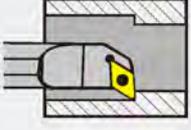
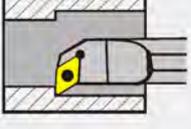
Tool holder style and approach angle

A	B	C	D	E	F	G	H
							
J	K	L	M	N	O	P	Q
							
R	S	T	U	V	W	X	
							

Clearance angle of insert

	B
	C
	D
	E
	N
	P

Cutting direction

	L - Left hand
	R - Right hand

Manufacture option

D	Increase offset f size+1.0mm
E	Increase offset f size+2.0mm
R	Round shank
W	Wedge clamping
X	Back boring

C R 07

Length of cutting edge

Inserts shape	C	D	R	S	T	V	W
							
Inscribed circle	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
12.700	12	15	12	12	22	22	08
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---

General turning
Internal turning tools code key

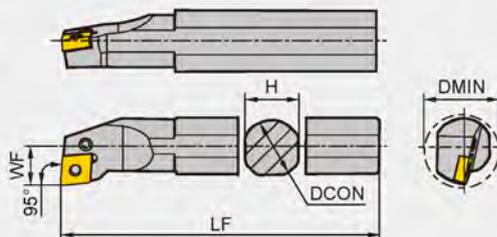
Internal turning tools

Corresponding tool holders of insert **CN** P-type clamping

PCLNR/IL KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S16Q-PCLNR/L09	△	△	20	16	15	180	11	LEM5×9B			---	---
S20R-PCLNR/L09	△	△	25	20	18	200	13	LEM5×9B				
S25S-PCLNR/L09	△	△	32	25	23	250	17	LEM5×9B				
S25S-PCLNR/L12	△	△	32	25	23	250	17	LEM6×13.4A	WH25L	L4A	---	---
S32T-PCLNR/L12	▲	▲	44	32	30	300	22	LEM8×21	WH30L	L4	C12APB	SP4
S40U-PCLNR/L12	▲	▲	54	40	38	350	27					
S50V-PCLNR/L12	▲	▲	63	50	47	400	35					
S50V-PCLNR/L16	△	△	63	50	48	400	31	LEM8×25	WH30L	L5	C16AP	SP5
S50S-PCLNR/L19	△	△	63	50	47	250	35	LEM10×27	WH40L	L6	C19AP	SP6
S50W-PCLNR/L19	▲	▲	63	50	47	450	35					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A52	XM A54	DR Double-side A56	HDR A58	TC A58
	DF A52	PM A53	DR Single-side A57	HPR A58	Without chipbreaker A59
	SF A52	DM A54	ER Double-side A57		
	EF A52	EM A55	ER Single-side A57		
	ADF A53	EG A55	SNR Double-side A57		
	NF A53	EH A55	LR Single-side A56		
		NM A55			
Tool holder type	<input type="checkbox"/> -PCLNR/L09	CN <input type="checkbox"/> 0903 <input type="checkbox"/>	CN <input type="checkbox"/> 0903 <input type="checkbox"/>	CN <input type="checkbox"/> 1204 <input type="checkbox"/>	CN <input type="checkbox"/> 1204 <input type="checkbox"/>
	<input type="checkbox"/> -PCLNR/L12	CN <input type="checkbox"/> 1204 <input type="checkbox"/>			
	<input type="checkbox"/> -PCLNR/L16	CN <input type="checkbox"/> 1606 <input type="checkbox"/>			
	<input type="checkbox"/> -PCLNR/L19		CN <input type="checkbox"/> 1906 <input type="checkbox"/>	CN <input type="checkbox"/> 1906 <input type="checkbox"/>	CN <input type="checkbox"/> 1906 <input type="checkbox"/>

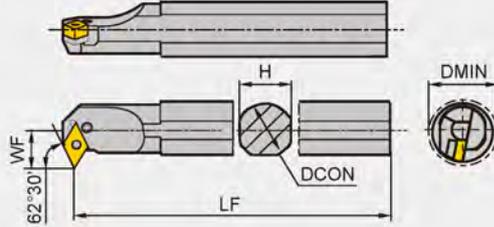


Corresponding tool holders of insert **DN** P-type clamping

PDPNR/L
KAPR:62° 30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S32T-PDPNR/L15-3	▲	▲	40	32	30	300	22	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDPNR/L15-3	▲	▲	50	40	38	350	27					
S32T-PDPNR/L15	△	△	40	32	30	300	22	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDPNR/L15	△	△	50	40	38	350	27					

▲Stock available △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A66	TC A66
	DF A60	PM A62	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				

Tool holder type

<input type="checkbox"/> -PDPNR/L15-3	DN <input type="checkbox"/> <input type="checkbox"/> 1504 <input type="checkbox"/> <input type="checkbox"/>	DN <input type="checkbox"/> <input type="checkbox"/> 1504 <input type="checkbox"/> <input type="checkbox"/>	DN <input type="checkbox"/> <input type="checkbox"/> 1504 <input type="checkbox"/> <input type="checkbox"/>		DN <input type="checkbox"/> <input type="checkbox"/> 1504 <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> -PDPNR/L15	DN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	DN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	DN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	DN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	DN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>

Internal turning tools

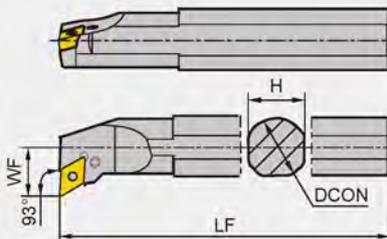
Corresponding tool holders of insert **DN** P-type clamping

PDUNR/L

KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S20R-PDUNR/L11	△	△	25	20	19	200	13	LEM5×12B	WT09P	L3D	---	---
S25S-PDUNR/L11	△	△	32	25	23	250	17					
S32T-PDUNR/L15	△	△	40	32	30	300	22	LEM8×21	WH30L	L4B	D15AP	SP4
S32T-PDUNR/L15-3	△	△	40	32	30	300	22	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDUNR/L15	△	△	50	40	38	350	27	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDUNR/L15-3	▲	▲	50	40	38	350	27	LEM8×21	WH30L	L4	D15AP	SP4

▲Stock available △Make-to-order

Applicable inserts

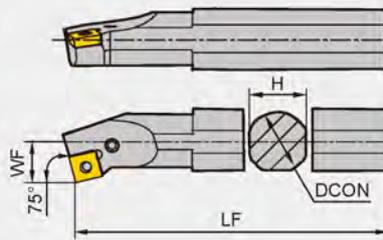
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A60	XM A63	DR Double-side A65	HDR A66	TC A66
	DF A60	PM A62	DR Single-side A65		Without chipbreaker A67
	SF A60	DM A63	ER Double-side A65		
	EF A61	EM A64	ER Single-side A66		
	ADF A61	EG A64	SNR Double-side A66		
	NF A61	NM A64	LR Single-side A65		
	NGF A62				
Tool holder type	□□-PDUNR/L11	DN□□1104□□	DN□□1104□□		DN□□1104□□
	□□-PDUNR/L15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□
	□□-PDUNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

Corresponding tool holders of insert **SN** P-type clamping

PSKNR/L
KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S25S-PSKNR/L12	▲	▲	32	25	23	250	17	LEM6×13.4A	WH25L	L4A	---	---
S32T-PSKNR/L12	△	△	41	32	30	300	22	LEM8×21	WH30L	L4	S12APB	SP4
S40U-PSKNR/L12	△	△	50	40	38	350	27					

▲Stock available △Make-to-order

General turning
Internal turning tools

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For heavy machining		For cast iron machining	
Inserts shape	XF	A68	XM	A70	DR Double-side	A73	HDR	A75	TC	A76
	DF	A68	PM	A70	DR Single-side	A74	HPR	A76	Without chipbreaker	A77
	EF	A68	DM	A71	ER Double-side	A74				
	ADF	A69	EM	A71	ER Single-side	A75				
	SF	A69	EG	A72	SNR Double-side	A75				
			NM	A72	LR Single-side	A72				

Tool holder type

-PSKNR/L12 SN1204 SN1204 SN1204 SN1204 SN1204

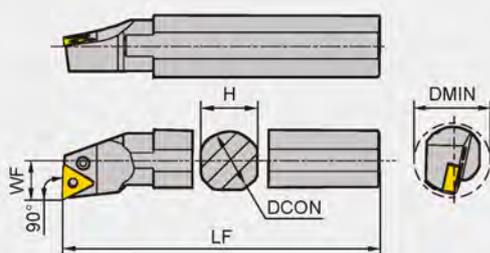


Corresponding tool holders of insert **TN** P-type clamping

PTFNRL
KAPR:90°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S25S-PTFNR/L16	▲	▲	32	25	23	250	17	LEM5×12B	WT09P	L3B	---	---
S32T-PTFNR/L16	△	△	41	32	30	300	21	LEM6×17	WH25L	L3	T16APB	SP3
S40U-PTFNR/L16	△	△	50	40	38	350	26					

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	XF A78	XM A80	DR Double-side A82	HDR A84	TC A84
	DF A78	PM A80	DR Single-side A83		Without chipbreaker A84
	SF A78	DM A81	ER Double-side A83		
	EF A79	EM A81	SNR Double-side A83		
	ES A79	EG A81	LR Single-side A82		
	ADF A79	EH A82			

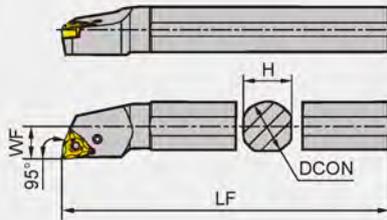
Tool holder type □□-PTFNR/L16 TN□□1604□□ TN□□1604□□ TN□□1604□□ TN□□1604□□ TN□□1604□□

Corresponding tool holders of insert **WN** P-type clamping

PWLNRL
KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	DMIN	DCON	H	LF	WF					
S16R-PWLNRL06	△	△	22	16	15	200	11	LEM5X12B	WT09P	L3B	---	---
S20R-PWLNRL06	△	△	25	20	18	200	13			L3B	---	---
S25S-PWLNRL06	△	△	35	25	23	250	17			L3B	---	---
S20R-PWLNRL08	△	△	25	20	18	200	13	LEM6X13.4A	WH25L	L4A	---	---
S25S-PWLNRL08	△	△	32	25	23	250	17			L4A	---	---
S32T-PWLNRL08	△	△	40	32	30	300	22			L4	W08AP	SP4

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining
Inserts shape	XF A88	XM A90	DR Double-side A92	TC A93
	DF A88	PM A90	SNR Double-side A92	Without chipbreaker A93
	SF A88	DM A91		
	EF A89	EM A91		
	ES A89	EG A91		
	ADF A89	EH A92		
	NF A89	NM A92		
Tool holder type	<input type="checkbox"/> -PWLNRL06	WN <input type="checkbox"/> <input type="checkbox"/> 0604 <input type="checkbox"/> <input type="checkbox"/>	WN <input type="checkbox"/> <input type="checkbox"/> 0604 <input type="checkbox"/> <input type="checkbox"/>	WN <input type="checkbox"/> <input type="checkbox"/> 0604 <input type="checkbox"/> <input type="checkbox"/>
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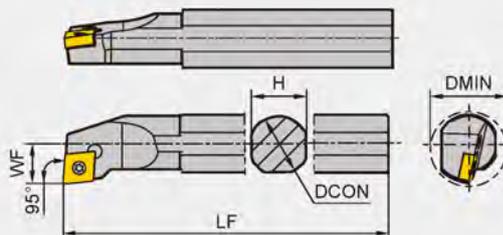
General turning
Internal turning tools

Corresponding tool holders of insert **CC** S-type clamping

SCLCRIL KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S08K-SCLCR/L06	▲	▲	10	8	7.4	125	5	I60M2.5×5.5		---	---
S10K-SCLCR/L06	▲	▲	13	10	9	125	6				
S12M-SCLCR/L06	▲	▲	16	12	11	150	9				
S12M-SCLCR/L09	▲	▲	16	12	11	150	9	I60M3.5×8	WT15IP	---	---
S14N-SCLCR/L09	△	△	18	14	13	160	9				
S16Q-SCLCR/L09	△	△	20	16	15	180	11				
S20R-SCLCR/L09	△	△	25	20	18	200	13	I60M3.5×8	WT15IP	---	---
S25S-SCLCR/L09	△	△	32	25	23	250	17	I60M3.5×10			
S20R-SCLCR/L12	△	△	25	20	19	200	12.5	I60M4×11X			
S25S-SCLCR/L12	▲	▲	32	25	23	250	17	I60M4×11X	WT15IP	---	---
S32T-SCLCR/L12	△	△	40	32	30	300	22	I60M4×11X	WH40L	C12BS	SM6×10XA
S40U-SCLCR/L12	△	△	50	40	37	350	27				

▲Stock available △Make-to-order

Applicable inserts

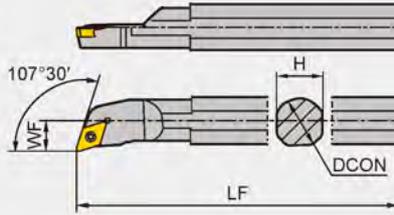
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For cast iron machining	For Al machining
Inserts shape	SF A95	XF A95	XM A96	HR A98	TC A98	LH A99
		HF A95	HM A97			LC A99
		EF A96	EM A97			
		AHF A96	EG A97			
Tool holder type	<input type="checkbox"/> -SCLCR/L06	CC <input type="checkbox"/> 0602 <input type="checkbox"/>	CCGX0602 <input type="checkbox"/>			
	<input type="checkbox"/> -SCLCR/L09	CC <input type="checkbox"/> 09T3 <input type="checkbox"/>	CCGX09T3 <input type="checkbox"/>			
	<input type="checkbox"/> -SCLCR/L12		CC <input type="checkbox"/> 1204 <input type="checkbox"/>	CC <input type="checkbox"/> 1204 <input type="checkbox"/>	CC <input type="checkbox"/> 1204 <input type="checkbox"/>	CCGX1204 <input type="checkbox"/>

Corresponding tool holders of insert **DC** S-type clamping

SDQCR/L
KAPR:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	DMIN	DCON	H	LF	WF				
S10K-SDQCR/L07	▲	▲	13	10	9	125	7	I60M2.5×5.5	WT071P	---	---
S12M-SDQCR/L07	▲	▲	16	12	11	150	9				
S16Q-SDQCR/L07	△	△	20	16	15	180	11	I60M2.5×6.5	WT151P	---	---
S20R-SDQCR/L11	△	△	25	20	18	200	13	I60M3.5×8			
S25S-SDQCR/L11	△	△	32	25	23	250	17	I60M3.5×10	WT151P	---	---
S32T-SDQCR/L11	△	△	40	32	30	300	22	I60M3.5×8			
S40U-SDQCR/L11	△	△	50	40	37	350	27	I60M3.5×10			

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For AI machining
Inserts shape	SF  A100	XF  A100	XM  A101	HR  A102	LH  A103
		HF  A100	HM  A102		LC  A103
		EF  A101	EM  A102		
		AHF  A101			
Tool holder type	<input type="checkbox"/> -SDQCR/L07	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DCGX0702 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SDQCR/L11	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DCGX11T3 <input type="checkbox"/> <input type="checkbox"/>

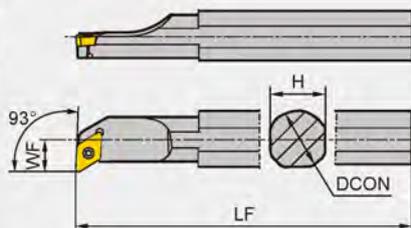
General turning
Internal turning tools

Corresponding tool holders of insert DC S-type clamping

SDUCRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	DMIN	DCON	H	LF	WF				
S10K-SDUCR/L07	▲	▲	13	10	9	125	7	I60M2.5×5.5	WT07IP	---	---
S12M-SDUCR/L07	▲	▲	16	12	11	150	9				
S16Q-SDUCR/L07	△	△	20	16	15	180	11	I60M2.5×6.5	---	---	
S20R-SDUCR/L11	△	△	25	20	18	200	13				
S25S-SDUCR/L11	△	△	32	25	23	250	17	I60M3.5×10	WT15IP	---	---
S32T-SDUCR/L11	△	△	40	32	30	300	22				
S40U-SDUCR/L11	△	△	50	40	37	350	27				

▲ Stock available △ Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	
Inserts shape	SF  A100	XF  A100	XM  A101	HR  A102	LH  A103	
		HF  A100	HM  A102		LC  A103	
		EF  A101	EM  A102			
		AHF  A101				
Tool holder type	<input type="checkbox"/> -SDUCR/L07	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>		DCGX0702 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SDUCR/L11	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DCGX11T3 <input type="checkbox"/> <input type="checkbox"/>

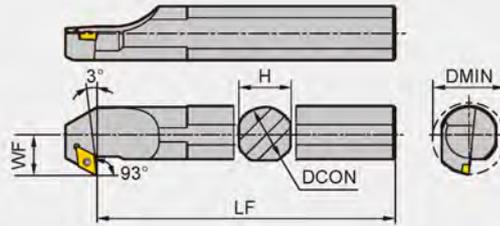


Corresponding tool holders of insert DC S-type clamping

SDZCRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S25S-SDZCR/L11	△	△	32	25	23	250	17	I60M3.5×10	WT15IP	---	---
S32T-SDZCR/L11	△	△	40	32	30	300	22				
S40U-SDZCR/L11	△	△	50	40	37	350	27	I60M3.5×12	WT15IP WH35L	D11BS	SM5×8.65XA

▲Stock available △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For AI machining
Inserts shape	SF A100	XF A100	XM A101	HR A102	LH A103
		HF A100	HM A102		LC A103
		EF A101	EM A102		
		AHF A101			

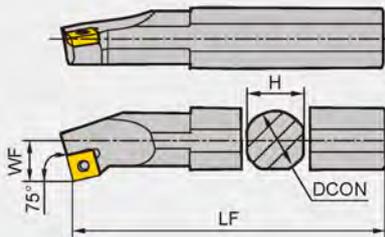
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SDZCR/L11	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DCGX11T3 <input type="checkbox"/> <input type="checkbox"/>
------------------	--	---	---	---	---	--

Corresponding tool holders of insert **SC** S-type clamping

SSKCRIL
KAPR:75°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S12M-SSKCR/L09	▲	△	16	12	11	150	9	I60M3.5×8		---	---
S16Q-SSKCR/L09	△	△	20	16	15	180	11				
S20R-SSKCR/L09	△	△	25	20	18	200	13				
S25S-SSKCR/L12	△	△	32	25	23	250	17	I60M4×11X		---	---
S32T-SSKCR/L12	△	△	40	32	30	300	22				

▲Stock available △Make-to-order

Applicable inserts

Application	For finishing		For semi-finishing		For roughing		For AI machining	
Inserts shape	XF	A106	XM	A107	HR	A108	LH	A108
	HF	A106	HM	A107			LC	A108
	EF	A106	EM	A107				
	AHF	A106						
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SSKCR/L09	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> <input type="checkbox"/> -SSKCR/L12		SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>

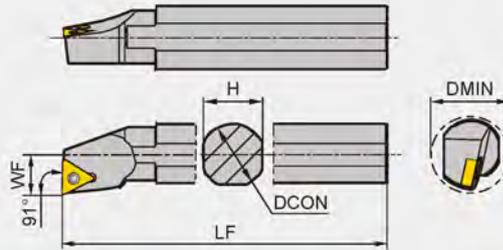


Corresponding tool holders of insert **TC** S-type clamping

STFCRIL
KAPR:91°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S12M-STFCR/L11	▲	▲	16	12	11	150	9	I60M2.5×6.5	WT07IP	---	---
S16Q-STFCR/L11	△	△	20	16	15	180	11				
S20R-STFCR/L11	△	△	25	20	18	200	13				
S25S-STFCR/L16	△	△	32	25	23	250	17	I60M3.5×10	WT15IP	---	---
S32T-STFCR/L16	△	△	40	32	30	300	22	I60M3.5×12	WT15IP WH35L	T16BS	SM5×8.65XA
S40U-STFCR/L16	△	△	50	40	37	350	27				

▲Stock available △Make-to-order

General turning

Internal turning tools

Applicable inserts

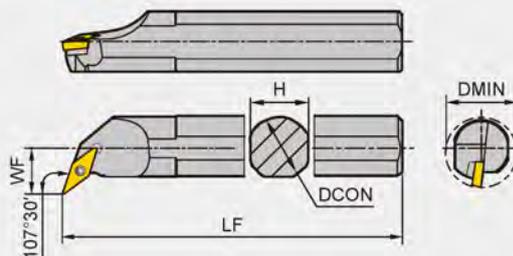
Application	For finishing	For semi-finishing	For roughing	For AI machining
Inserts shape	XF A109	XM A111	HR A112	LH A113
	HF A109	HM A112		LC A113
	EF A109	EM A111		
	AHF A111	EG A111		
Tool holder type	<input type="checkbox"/> -STFCR/L11 TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TCGX1102 <input type="checkbox"/> <input type="checkbox"/>
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Corresponding tool holders of insert VC S-type clamping

SVQCR/L
KAPR:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S16Q-SVQCR/L11	▲	▲	22	16	15	180	13	I60M2.5×6.5	WT07IP	---	---
S20R-SVQCR/L16	△	△	27	20	18	200	14	I60M3.5×8	WT15IP	---	---
S25S-SVQCR/L16	△	△	35	25	23	250	20	I60M3.5×12	WT15IP	V16BS	SM5×8.65XA
S32T-SVQCR/L16	△	△	40	32	30	300	22		WH35L		

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For AI machining
Inserts shape	SF  A114	XF  A114	LH  A116
		NF  A114	LC  A116
		AHF  A114	
Tool holder type	<input type="checkbox"/> -SVQCR/L11 VC <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> -SVQCR/L16 VC <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VCGX1103 <input type="checkbox"/> <input type="checkbox"/> VCGX1604 <input type="checkbox"/> <input type="checkbox"/>

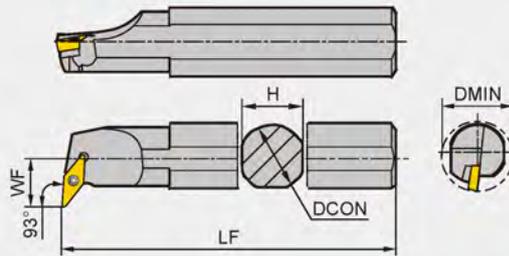


Corresponding tool holders of insert VC **S-type clamping**

SVUCR/L
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S16Q-SVUCR/L11	△	△	24	16	15	180	15	I60M2.5×6.5	WT07IP	---	---
S20R-SVUCR/L11	△	△	28	20	18	200	17				
S25S-SVUCR/L16	△	△	33	25	23	250	19	I60M3.5×12	WT15IP	---	---
S32T-SVUCR/L16	△	△	40	32	30	300	22				

▲Stock available △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For extra finishing	For finishing	For Al machining	
Inserts shape	SF  A114	XF  A114	LH  A116	
		NF  A114	LC  A116	
		AHF  A114		
Tool holder type	<input type="checkbox"/> -SVUCR/L11	VC <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>	VC <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>	VCGX1103 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SVUCR/L16		VC <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VCGX1604 <input type="checkbox"/> <input type="checkbox"/>



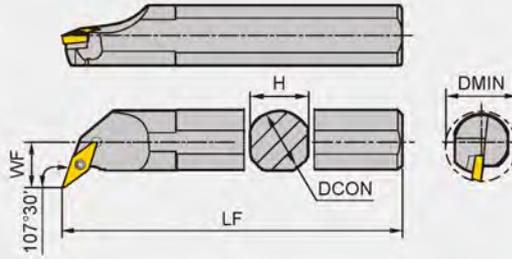


Corresponding tool holders of insert **VB** S-type clamping

SVQBR/L
KAPR:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S20R-SVQBR/L16	△	△	27	20	18	200	14	I60M3.5×8	WT15IP	---	---
S25S-SVQBR/L16	△	△	35	25	23	250	20	I60M3.5×12	WT15IP WH35L	V16BS	SM5×8.65XA
S32T-SVQBR/L16	▲	▲	40	32	30	300	22				

▲Stock available △Make-to-order

Applicable inserts

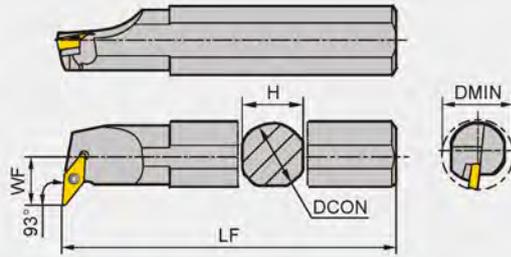
Application	For finishing	For semi-finishing	For roughing	
Inserts shape	XF A117	XM A118	HR A119	
	EF A117	HM A119	SNR A119	
	NF A118	EM A118		
	NGF A118			
	AHF A118			
Tool holder type	<input type="checkbox"/> -SVQBR/L16	VB <input type="checkbox"/> 1604 <input type="checkbox"/>	VB <input type="checkbox"/> 1604 <input type="checkbox"/>	VB <input type="checkbox"/> 1604 <input type="checkbox"/>

Corresponding tool holders of insert **VB** S-type clamping

SVUBRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	DMIN	DCON	H	LF	WF				
S25S-SVUBR/L16	△	△	33	25	23	250	18	I60M3.5×12	WT151P	---	---
S32T-SVUBR/L16	△	△	40	32	30	300	22		WT151P WH35L	V16BS	SM5×8.65XA

※ Tool holder with cooling hole ▲ Stock available △ Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing
Inserts shape	XF  A117	XM  A118	HR  A119
	EF  A117	HM  A119	SNR  A119
	NF  A118	EM  A118	
	NGF  A118		
	AHF  A118		
Tool holder type	□□-SVUBR/L16	VB□□1604□□	VB□□1604□□

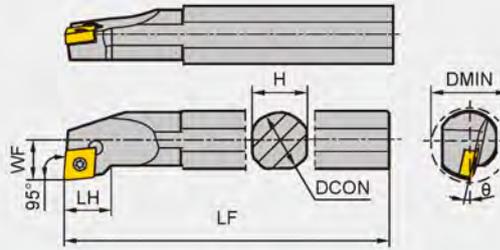


Corresponding tool holders of insert CP S-type clamping

SCLPRIL KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	H	LF	WF	θ	LH				
S10K-SCLPR/L06	▲	▲	12	10	9	125	6	-7°	17	I60M2.5×5.5	WT07IP	---	---
S12M-SCLPR/L06	▲	▲	16	12	11	150	8	-4°	20				
S16Q-SCLPR/L09	▲	▲	20	16	15	180	10	-4°	29	I60M3.5×8	WT15IP	---	---
S20R-SCLPR/L09	△	△	25	20	18	200	13	-4°	35				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF  A120
Tool holder type	<input type="checkbox"/> -SCLPR/L06 CP <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLPR/L09 CP <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>

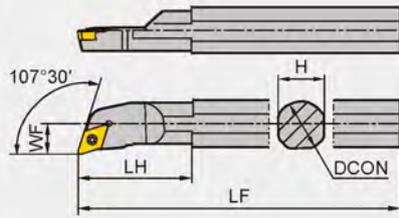


Corresponding tool holders of insert **DP** S-type clamping

SDQPR/L
KAPR:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	H	LF	WF	θ	LH				
S10K-SDQPR/L07	△	△	13	10	9	125	7	-8°	20	I60M2.5×5.5	WT07IP	---	---
S12M-SDQPR/L07	▲	△	16	12	11	150	9	-8°	22				
S16Q-SDQPR/L07	▲	△	20	16	15	180	11	-6°	27	I60M2.5×6.5	WT07IP	---	---
S16Q-SDQPR/L11	▲	△	20	16	15	180	11	-6°	32				
S20R-SDQPR/L11	△	△	25	20	18	200	13	-6°	33	I60M3.5×8	WT15IP	---	---

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF 
Tool holder type	<input type="checkbox"/> -SDQPR/L07 DP <input type="checkbox"/> 0702 <input type="checkbox"/>
	<input type="checkbox"/> -SDQPR/L11 DP <input type="checkbox"/> 11T3 <input type="checkbox"/>

A120



General turning

Internal turning tools



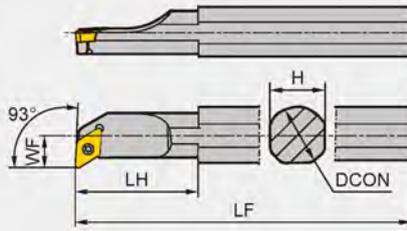
Corresponding tool holders of insert **DP**

S-type clamping

SDUPRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	H	LF	WF	θ	LH				
S10K-SDUPR/L07	▲	▲	15	10	9	125	9	-8°	18	I60M2.5×5.5	WT071P	---	---
S12M-SDUPR/L07	▲	△	16	12	11	150	9	-8°	19				
S16Q-SDUPR/L07	△	△	20	16	15	180	11	-6°	25				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF  A120
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SDUPR/L07 DP <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>



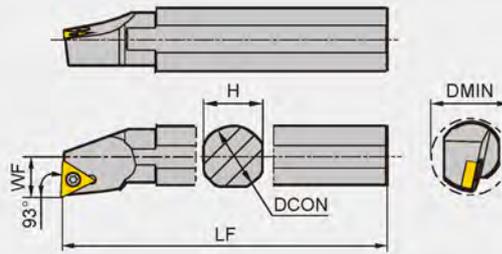
Corresponding tool holders of insert **TP**

S-type clamping

STUPRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	DMIN	DCON	H	LF	WF			---	---
S10M-STUPR/L09	△	△	13	10	9.4	150	6	I60M2.2×5.5	WT07IP	---	---
S10M-STUPR/L11	△	△	13	10	9.4	150	6			---	---
S12Q-STUPR/L11	△	△	16	12	11.4	180	7.5	I60M2.5×6.5	WT07IP	---	---
S16R-STUPR/L11	△	△	20	16	15	200	10			---	---

▲Stock available △Make-to-order

General turning

Internal turning tools

Applicable inserts

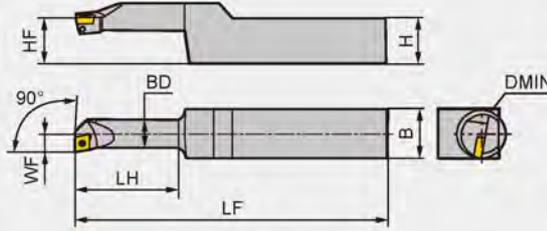
Application	For extra finishing
Inserts shape	SF A122
Tool holder type	
<input type="checkbox"/> -STUPR/L09	TP <input type="checkbox"/> <input type="checkbox"/> 0902 <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> -STUPR/L11	TP <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>





Corresponding tool holders of insert **CC** S-type clamping

SCFCRIL
KAPR:90°



Type	Stock		Basic dimensions(mm)								Screw	Wrench	---	---
	R	L	DMIN	BD	LF	WF	H	HF	B	LH				
S10M-SCFCR/L06S25	▲	▲	13	10	150	7	27	27	25	35	I60M2.5×5.5	WT071P	---	---
S12P-SCFCR/L06S25	▲	▲	16	12	170	9	27	27	25	35				
S16Q-SCFCR/L09S25	▲	▲	20	16	180	11	27	27	25	50	I60M3.5×8	WT151P	---	---
S20R-SCFCR/L09S25	△	△	25	20	200	13	27	27	25	50				
S25R-SCFCR/L12S25	△	△	32	25	200	17	27	27	25	75				

▲Stock available △Make-to-order

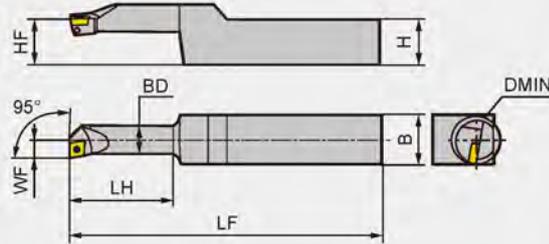
Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For cast iron machining	For Al machining
Inserts shape	SF  A95	XF  A95	XM  A96	HR  A98	TC  A98	LH  A99
		HF  A95	HM  A97			LC  A99
		EF  A96	EM  A97			
		AHF  A96	EG  A97			
Tool holder type	<input type="checkbox"/> -SCFCR/L06S25	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/> CCGX0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCFCR/L09S25	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/> CCGX09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCFCR/L12S25		CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/> CCGX1204 <input type="checkbox"/> <input type="checkbox"/>



Corresponding tool holders of insert **CC** S-type clamping

SCLCR/IL
KAPR:95°



Type	Stock		Basic dimensions(mm)									Screw	Wrench	---	---
	R	L	DMIN	BD	LF	WF	H	HF	B	LH					
S10M-SCLCR/L06S20	▲	▲	13	10	150	7	22	22	20	30	I60M2.5×5.5	WT07IP	---	---	
S12P-SCLCR/L06S20	▲	▲	16	12	170	9	22	22	20	35					
S16Q-SCLCR/L09S20	▲	▲	20	16	180	11	22	22	20	40	I60M3.5×8	WT15IP	---	---	
S20R-SCLCR/L09S20	△	△	25	20	200	13	22	22	20	45					

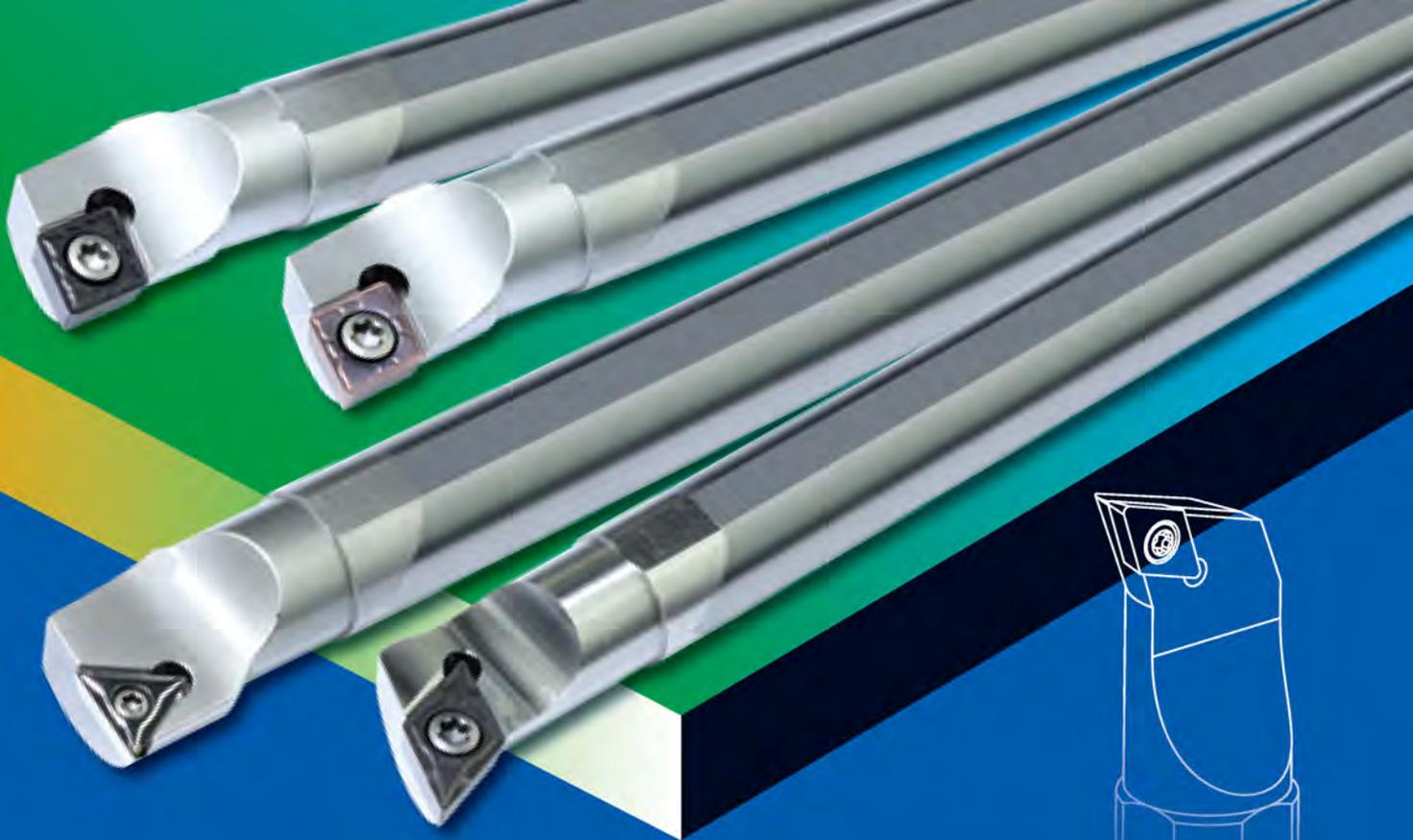
▲Stock available △Make-to-order

General turning
Internal turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For cast iron machining	For Al machining
Inserts shape	SF  A95	XF  A95	XM  A96	HR  A98	TC  A98	LH  A99
		HF  A95	HM  A97			LC  A99
		EF  A96	EM  A97			
		AHF  A96	EG  A97			

Tool holder type	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCG0602□□
□□-SCLCR/L06S20	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCG0602□□
□□-SCLCR/L09S20	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCG09T3□□



Damping tool holders for internal turning

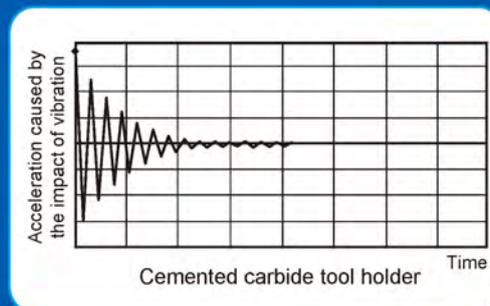
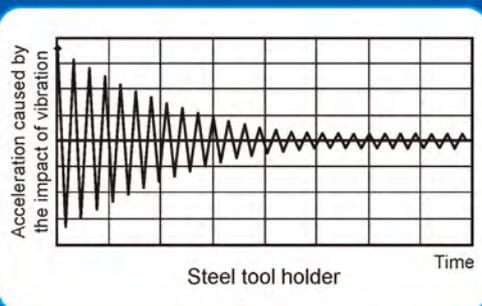
Technical features

Increasing material rigidity of tool holder can reduce the amplitude, or obtain larger overhang under the condition of same systemic stability. Therefore, compared with steel tool holder, cemented carbide tool holder has better dampening effect, smaller amplitude and reaches convergence point sooner. As for machining under the condition of long overhang and easy vibration, they can exert excellent performance and achieve higher dimensional accuracy and surface quality.



Under the same machining condition

The maximum overhang of cemented carbide tool holder can reach $L \leq 6D$, while the recommended maximum overhang of steel tool holder is $L \leq 3D$.



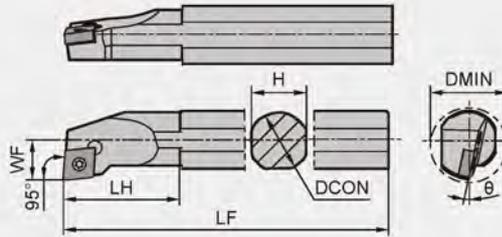


Corresponding tool holders of insert **CP** (Damping tool holder) S-type clamping

SCLPRIL
KAPR:95°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	-	-
	R	L	DMIN	DCON	WF	LF	LH	H	θ				
C10M-SCLPR/L06	▲	△	12	10	6	150	17	9	-7°	I60M2.5×5.5	WT07IP	--	--
C12Q-SCLPR/L06	△	△	16	12	8	180	20	11	-4°				
C16R-SCLPR/L09	▲	△	20	16	10	200	29	15	-4°	I60M3.5×8	WT15IP	--	--
C20S-SCLPR/L09	△	△	25	20	13	250	35	18	-4°				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF  A120
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SCLPR/L06 CP <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -SCLPR/L09 CP <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>

General turning

Internal turning tools



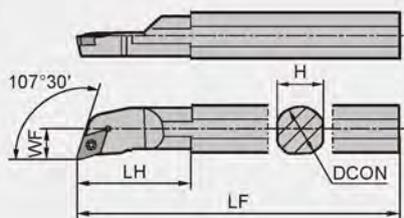
Corresponding tool holders of insert **DP** (Damping tool holder) S-type clamping

SDQPRIL

KAPR:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	WF	LF	LH	H	θ			---	---
C10M-SDQPR/L07	▲	△	13	10	7	150	20	9	-8°	I60M2.5×5.5	WT07IP	---	---
C12Q-SDQPR/L07	△	△	16	12	9	180	22	11	-8°			---	---
C16R-SDQPR/L07	△	△	20	16	11	200	27	15	-6°	I60M2.5×6.5	WT15IP	---	---
C16R-SDQPR/L11	△	△	20	16	11	200	32	15	-6°			---	---
C20S-SDQPR/L11	▲	△	25	20	13	250	33	18	-6°	I60M3.5×8	WT15IP	---	---

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF  A120
Tool holder type	□□-SDQPR/L07 DP□□0702□□ □□-SDQPR/L11 DP□□11T3□□

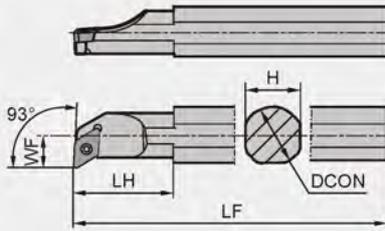


Corresponding tool holders of insert **DP** (Damping tool holder) S-type clamping

SDUPRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	WF	LF	LH	H	θ			---	---
C10M-SDUPR/L07	△	△	15	10	9	150	18	9	-8°	I60M2.5×5.5	WT07IP	---	---
C12Q-SDUPR/L07	△	△	16	12	9	180	19	11	-8°	I60M2.5×5.5		---	---
C16R-SDUPR/L07	△	△	20	16	11	200	25	15	-6°	I60M2.5×6.5		---	---

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF  A120
Tool holder type	<input type="checkbox"/> -SDUPR/L07 DP <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/>

General turning
Internal turning tools

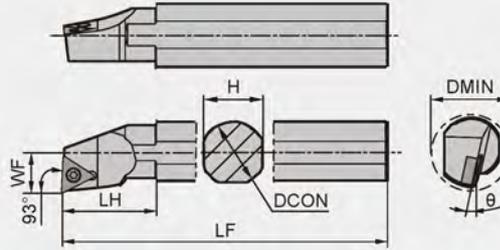


Corresponding tool holders of insert **TP** (Damping tool holder) S-type clamping

STUPRIL KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	WF	LF	LH	H	θ				
C10M-STUPR/L09	▲	△	12	10	6	150	20	9	-6°	I60M2.2×5.5	WT07IP	---	---
C12Q-STUPR/L09	▲	△	16	12	8	180	22	11	-4°				
C12Q-STUPR/L11	▲	△	16	12	8	180	25	11	-4°	I60M2.5×6.5	WT07IP	---	---
C16R-STUPR/L11	▲	△	20	16	10	200	27	15	-3°				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	SF  A122
Tool holder type	<input type="checkbox"/> -STUPR/L09 TP <input type="checkbox"/> <input type="checkbox"/> 0902 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -STUPR/L11 TP <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>

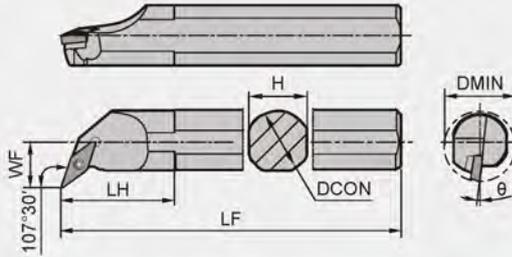


Corresponding tool holders of insert VC (Damping tool holder) S-type clamping

SVQCRIL
KAPR:107°30'



R-type shown



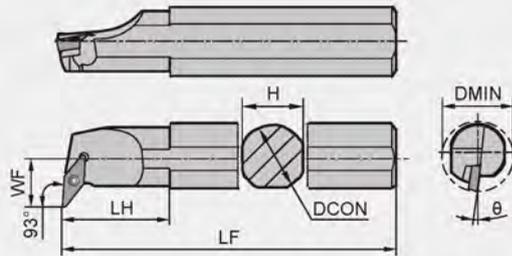
Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	WF	LF	LH	H	θ				
C16R-SVQCR/L11	△	△	22	16	13	200	28	15	-6°	I60M2.5×6.5	WT071P	---	---
C20S-SVQCR/L11	△	△	26	20	15	250	32	18	-4°				

▲Stock available △Make-to-order

SVUCRIL
KAPR:93°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	DMIN	DCON	WF	LF	LH	H	θ				
C16R-SVUCR/L11	△	△	24	16	15	200	25	15	-6°	I60M2.5×6.5	WT071P	---	---
C20S-SVUCR/L11	△	△	28	20	17	250	30	18	-4°				

▲Stock available △Make-to-order

Applicable inserts

Application	For extra finishing	For AI machining
Inserts shape	SF  A114	LH  A116
		LC  A116
Tool holder type	<input type="checkbox"/> -SVQCR/L11	VC <input type="checkbox"/> 1103 <input type="checkbox"/> VCGX1103 <input type="checkbox"/>
	<input type="checkbox"/> -SVUCR/L11	VC <input type="checkbox"/> 1103 <input type="checkbox"/> VCGX1103 <input type="checkbox"/>

General turning

Internal turning tools



Table of recommended cutting parameters for general turning

General turning

Application information for general turning

ISO	Materials	Hardness HB	CVD Coating			PVD Coating			Cermet	Coated cermet	
			YBC152	YBC252	YBC352	YBG102	YBG202	YBG302	YNG151	YNG151C	
			Feed rate (mm/rev)								
			0.1-0.6	0.1-0.8	0.2-1.0	0.2-0.4	0.1-0.6	0.05-0.8	0.05-0.2	0.05-0.2	
Cutting speed (m/min)											
P	Carbon steel	C=0.15%	125	500-270	480-240	430-220	460-220	380-180	360-165	550-350	580-350
		C=0.35%	150	460-250	460-230	350-200	440-210	300-170	280-150	500-300	520-300
		C=0.60%	200	400-220	400-200	310-180	380-180	260-150	240-130	460-260	480-260
	Alloy steel	Anneal	180	400-180	400-200	250-150	380-180	200-120	180-100	410-240	430-240
		Hardened	275	280-150	260-140	200-120	240-120	140-90	120-70	300-180	320-180
		Hardened	300	260-150	240-120	180-110	220-100	125-80	100-60	250-170	270-170
	High alloy steel	Hardened	350	230-120	220-120	160-100	200-100	110-75	90-55	230-150	250-150
		Anneal	200	360-190	310-170	220-130	290-150	175-100	155-80	350-200	370-200
	Cast steel	Hardene	325	190-130	150-100	140-90	130-80	85-60	65-40	170-110	190-110
		Non-Alloy	180	280-160	250-140	190-130	230-125	135-95	115-75	260-170	280-170
		Low alloy	200	280-110	220-110	170-130	200-90	120-100	100-80	260-170	280-170
		High alloy	225	210-110	190-100	150-110	170-80	95-55	95-55	260-100	280-100

ISO	Materials	Hardness HB	CVD Coating			PVD Coating			Cermet	Coated cermet		
			YBM153	YBM251	YBM253	YBM215	YBG202	YBG205	YBG302	YNG151	YNG151C	
			Feed rate (mm/rev)									
			0.2-0.6	0.2-0.6	0.2-0.6	0.2-0.4	0.1-0.4	0.2-0.4	0.2-0.6	0.1-0.3	0.1-0.3	
Cutting speed (m/min)												
M	Stainless steel	Ferrite	180	280-180	250-140	260-140	290-190	300-190	290-190	250-150	330-220	350-210
		Austenite	260	250-150	200-110	210-110	240-160	250-160	240-160	220-120	250-150	270-140
		Martensite	330	200-140	210-130	220-130	250-170	260-170	250-170	210-120	270-170	290-160



Table of recommended cutting parameters for general turning

ISO	Materials		Hardness HB	CVD Coating			Cermet	Coated cermet	Nonmetallic ceramics		
				YBD052	YBD102	YBD152	YNG151	YNG151C	CN3100		
				Feed rate (mm/rev)							
				0.1-0.4	0.1-0.4	0.1-0.5	0.1-0.4	0.1-0.4	0.1-1.5		
				Cutting speed (m/min)							
K	Malleable cast iron	Ferrolites	130	350-230	330-220	320-105	280-160	300-180	800-600		
		Pearlyte	230	250-105	230-100	230-100	220-120	240-150	700-500		
	Low grade cast iron	180	520-200	480-200	480-190	400-250	420-270	700-500			
	High grade cast iron	260	230-120	220-115	210-100	360-240	380-260	800-600			
	Ductile iron	Ferrolites	160	310-150	300-150	290-140	330-190	350-210	600-450		
		Pearlyte	250	230-110	220-105	210-100	310-200	330-220	500-350		

ISO	Materials		Hardness HB	PVD Coating					Cermet	CBN			PCD	Nonmetallic ceramics		
				YBG102	YBG105	YBG202	YBS103	YBG212	YD101	YCB011	YCB012	YZB221	YCD011	CN3100		
				Feed rate (mm/rev)												
				0.05-0.15	0.05-0.15	0.05-0.2	0.05-0.2	0.05-0.2	0.05-0.35	0.05-0.5	0.05-0.2	0.05-0.2	0.05-0.5	0.05-0.2		
				Cutting speed (m/min)												
N	Aluminium alloy	Unheated	60					1750-800				<2500				
		Heat treatment	100					510-250				<2500				
	Cast aluminium alloy	Unheated	75					460-175				<2500				
		Heat treatment	90					300-110				<2500				
	Copper alloy	Lead alloy	110					610-205				630-65				
		Copper, red bronze	90					310-195				630-65				
		Copper, Lead-free copper, electrolytic copper	100					225-115				375-30				
S	Nickel-based alloy	Nickel-based alloy	40	90-30	90-40	90-30	90-20	90-30	70-20				150-260			
H	Other material	Hard steel	45 HRC								350-225	350-225				
		Extra hard steel	50-60 HRC								250-135	250-135				
		Chilled cast iron	500						180-120							

General turning

Application information for general turning

Table of correctional cutting parameters of internal turning

Internal turning tools by P-type clamping

Workpiece material	Hardness HB	Machining category	L/D≤3		L/D=3-4 (Diameter of shank ≥ Ø16mm)	
			Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)
P Carbon steel, Alloy steel 45#, 42CrMo	HB180—280	For semi-finishing	0.1- 0.25 -0.4	<5.0	0.1- 0.2 -0.3	<4.0
M Carbon steel, Alloy steel 1Cr18Ni9Ti, 0Cr18Ni9	≤HB220	For semi-finishing	0.1- 0.2 -0.3	<4.0	0.1- 0.15 -0.25	<3.0
K Cast iron HT250	HB170—230	For semi-finishing	0.1- 0.25 -0.4	<5.0	0.1- 0.2 -0.3	<4.0

Internal turning tools by S-type clamping

Workpiece material	Hardness HB	Machining category	L/D≤3		L/D=4		L/D=5		L/D=6	
			Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)
P Carbon steel, Alloy steel 45#, 42CrMo	HB180-280	For finishing	0.05- 0.1 -0.15	<0.2	0.05- 0.1 -0.15	<0.2				
		For semi-finishing	0.15- 0.25 -0.35	<3.0	0.1- 0.15 -0.2	<1.5				
M Stainless steel 1Cr18Ni9Ti, 0Cr18Ni9	≤HB220	For finishing	0.05- 0.1 -0.15	<0.2	0.05- 0.1 -0.15	<0.2				
		For semi-finishing	0.15- 0.2 -0.25	<2.0	0.1- 0.15 -0.2	<1.0				
N Al alloy	---	For finishing	0.05- 0.1 -0.15	<0.2	0.05- 0.1 -0.15	<0.2	0.05- 0.1 -0.15	-0.15	0.05- 0.1 -0.15	<0.1
		For semi-finishing	0.05- 0.1 -0.15	<2.0	0.05- 0.1 -0.15	<1.5	0.05- 0.1 -0.15	-1.0	0.05- 0.1 -0.15	<1.0

Damping internal turning tools

Workpiece material	Machining conditions	Chipbreaker	Inserts material	Feed rate (mm/rev)	Cutting depth (mm)
P Steel HB180-280	For finishing	SF	YNG151 YNG151C	0.05- 0.2 -0.35	0.05- 0.1-0.3 -0.5
M Stainless steel ≤HB220				0.05- 0.2 -0.35	0.05- 0.1-0.3 -0.5
K Cast iron HB170-230				0.05- 0.2 -0.35	0.05- 0.1-0.3 -0.5

Blue words are recommended cutting parameters.



Frequent problems of turning and solutions

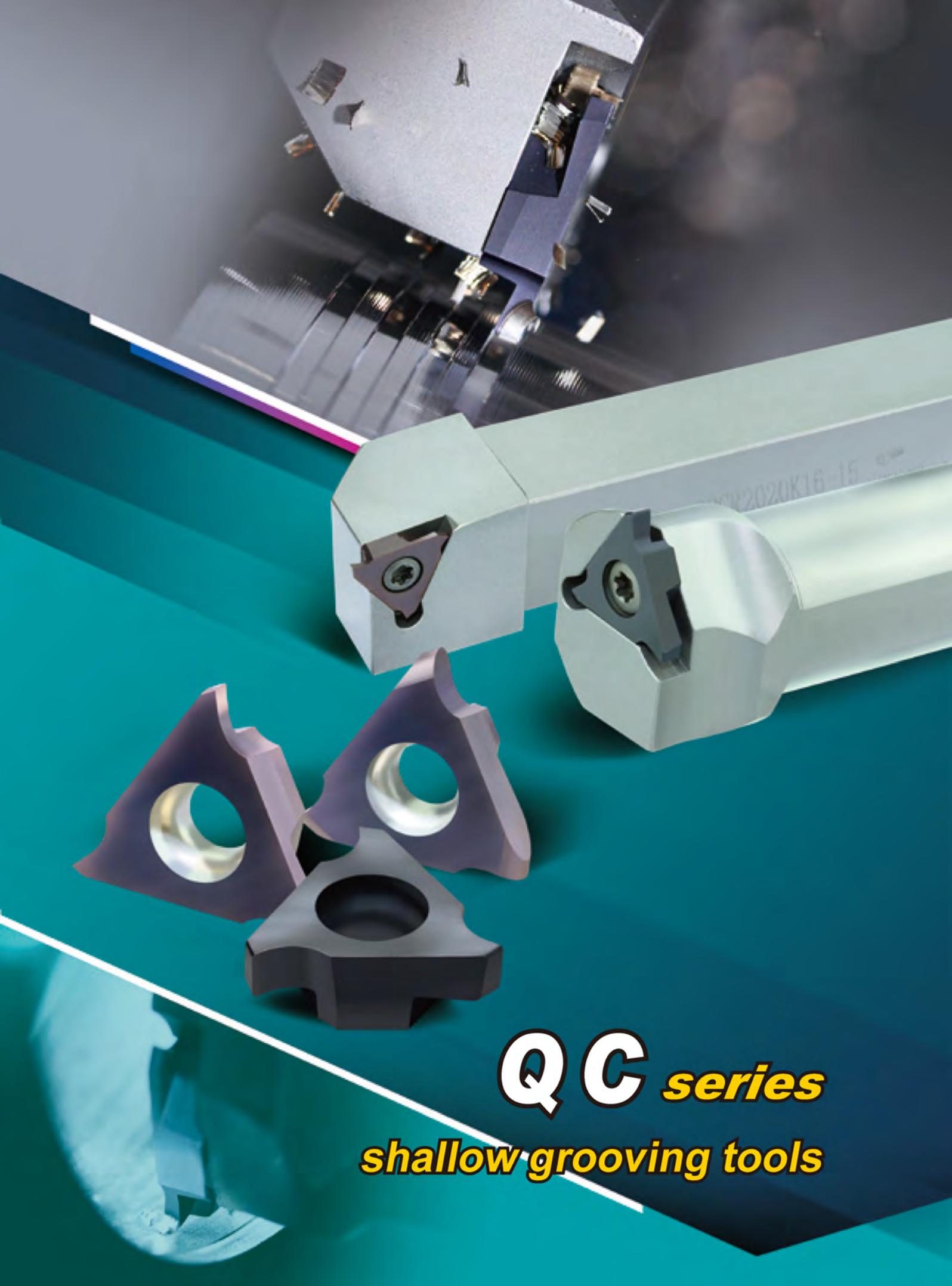
Common problem	Cause	Tool material		Cutting conditions				Tool shape					Machine clamping system				
		Harder materials	Tougher materials	Cutting speed	Feed rate	Cutting depth	Cutting liquid	Change chipbreaker of inserts	Rake angle	Nose radius	Approach angle	Cutting edge strength	Increase precision of inserts	Increase rigidity of tool holder	Clamping of tool holder and workpiece	Overhang of tool holder	Power, gap
Over abrasion on nose during machining	Abrasion intensified on flank	✓							↑								
	Unsuitable cutting conditions			↓	↑												
Surface precision deterioration	Abrasion intensified and cutting edge not sharp enough	✓		↓			✓		↑	↑		↓	✓				
	Cutting edge breakage		✓		↓	↓		✓		↑		↑			✓	✓	✓
	Unsuitable geometrical shape of cutting edge							✓		↑		↓	✓				
	Unsuitable cutting conditions			↑	↓	↓	✓										
	Vibration		✓	↑	↓	↓	✓	✓	↑	↓	↑	↓		✓	✓	✓	✓
	Built-up edge			↑	↑		✓	✓	↑			↓	✓				
Radiation	Effect of cutting heat			↓	↓	↓											
	Unsuitable geometrical shape of cutting edge	✓						✓	↑			↓					
Bad precision of dimensions during cutting	Insert tolerance												✓				
	Offset of workpiece or tools							✓	↑	↓	↑			✓	✓	✓	✓
Breakage	Abrasion on flank and rake face	✓		↓				✓	↑	↑		↓					
	Abrasion on rake face	✓		↓	↓	↓		✓	↑			↓					
	Edge chipping		✓		↓	↓		✓				↓	↑		✓	✓	✓
	Built-up edge			↑	↑		✓	✓	↑			↓	✓				
	Thermal cracking			↓	↓	↓	✓	✓	↑			↓					
	Cutting edge nose deformation	✓		↑	↓	↓	✓	✓	↑	↑	↓	↓					
	Tool life		✓		↓	↓		✓		↑	↓	↑		✓	✓	✓	✓
		Unsuitable materials and cutting conditions		✓		↓	↓		✓		↑	↓	↑		✓	✓	✓
Chip controlling	Long, unbroken and snarled chips			↓	↑	↑	✓										
		Unsuitable cutting condition			↓	↑	✓										
		Unsuitable geometry						✓		↓	↑						
	Too short and hard chips				↓	↓	✓										
Burr and knockdown flange	Steel and Al, burrs occurring			↑	↓		✓										
		Unsuitable cutting condition			↑	↓	✓										
		Tool abrasion and unsuitable geometrical shape	✓					✓	↑	↓	↑	↓					
	Edge break out on cast iron			↓	↑		✓										
		Unsuitable cutting conditions			↓	↑	✓										
		Tool abrasion and unsuitable geometrical shape	✓					✓	✓	↓	↓	↓					
Heavy burr on soft steel	Unsuitable cutting condition				↓	↓											
	Tool abrasion and unsuitable geometrical shape	✓						✓	↑	↑		↑		✓	✓	✓	✓

General turning

Application information for general turning

Abrasion of tools and various damages

Tool damage type	Phenomenon	Cause	Solution
Flank wear	Cutting resistant force increasing Groove wear on flank	Tool material is too soft. Cutting speed is too high. Clearance angle is too small. Feed rate is too low.	<ul style="list-style-type: none"> ◆ Select tool materials with good wear resistance. ◆ Reduce cutting speed. ◆ Enlarge clearance angle. ◆ Increase feed rate.
Rake face wear (Crater wear)	Bad chip controlling Surface quality deterioration	Tool material is too soft. Cutting speed is too high. Feed rate is too high.	<ul style="list-style-type: none"> ◆ Select tool materials with good wear resistance. ◆ Reduce cutting speed. ◆ Reduce feed rate.
Cutting edge breakage	Occasional breakage Instability of tool life	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is small.	<ul style="list-style-type: none"> ◆ Select tool materials with good toughness. ◆ Reduce feed rate. ◆ Increase land width (if rounding changes into chamfering). ◆ Enlarge tool bar size.
Breakage	Cutting resistant force increasing Deterioration of surface roughness	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is low.	<ul style="list-style-type: none"> ◆ Select tool materials with good toughness. ◆ Reduce feed rate. ◆ Increase land width (if rounding changes into chamfering). ◆ Enlarge tool bar size.
Plastic deformation (Cutting edge collapse)	Workpiece dimensions change Nose abrasion	Tool material is too soft. Cutting speed is too high. Cutting depth and feed rate are too high. Cutting edge temperature is too high.	<ul style="list-style-type: none"> ◆ Select tool material with good wear resistance ◆ Reduce cutting speed. ◆ Reduce cutting depth and feed rate. ◆ Select tool materials with good heat conductivity.
Built-up edge (Bonding)	Surface quality deterioration during finishing Cutting resistant force increasing	Cutting speed is low. Cutting edge is not sharp enough. Tool material is unsuitable.	<ul style="list-style-type: none"> ◆ Increase cutting speed. ◆ Enlarge rake angle. ◆ Select tool materials that are not easy to adhere together (coating, cermet, etc.)
Thermal cracking	Damage because of thermal circulation Normally occurring during intermittent machining	Premature edge failure due to thermal cracks. Tool material is too hard.	<ul style="list-style-type: none"> ◆ Adopt dry cutting. ◆ Select tool materials with good toughness.
Chattering	burrs occurring Cutting resistant force increasing	Feed rate and cutting speed are too high.	<ul style="list-style-type: none"> ◆ Select tool materials with good wear resistance. ◆ Sharpen cutting edge by enlarging rake angle. ◆ Reduce cutting speed.
Flaking	Usually occurring when machining super hard materials, which is accompanied with vibration	Bonding occurs on cutting edge. Chip flow is obstructed.	<ul style="list-style-type: none"> ◆ Sharpen cutting edge by enlarging rake angle. ◆ Enlarge chip pocket.



QC *series*
shallow grooving tools

How to select parting and grooving tools

How to select parting and grooving tools

Structure of parting and grooving tools selection table

- Categorized as external machining, internal machining and profile machining.
- Concluded and separately listed according to product series (Little squirrel series and Supplementary series).

Dimensions

Application of external machining, internal machining and profile machining

External parting, grooving and turning tools

Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
	R	L	H/B	HP	LF	WF	CW	CDX _{min}					
QEAD	1212R/L07	▲	▲	12	12	12	125	12.15	1.5	7	ZDAD0110Q	GB70-95-M4 × 12	WH30L
	1212R/L12	▲	▲	12	12	12	125	12.15	1.5	12	ZDAD0110Q	GB70-95-M4 × 12	WH30L
	1616R/L07	▲	▲	16	16	16	125	16.15	1.5	7	ZDAD0110Q	GB70-95-M4 × 12	WH30L
	1616R/L12	▲	▲	16	16	16	125	16.15	1.5	12	ZDAD0110Q	GB70-95-M4 × 12	WH30L
	2020R/L07	▲	▲	20	20	20	125	20.15	1.5	7	ZDAD0110Q	GB70-95-M4 × 12	WH30L
QEBD	1212R/L07	▲	▲	12	12	12	125	12.2	2	7	ZDR0210Q	GB70-95-M4 × 12	WH30L
	1212R/L10	▲	▲	12	12	12	125	12.2	2	10	ZDR0210Q	GB70-95-M4 × 12	WH30L
	1212R/L14	▲	▲	12	12	12	125	12.2	2	14	ZDR0210Q	GB70-95-M4 × 12	WH30L
	1616R/L07	▲	▲	16	16	16	125	16.2	2	7	ZDR0210Q	GB70-95-M4 × 12	WH30L
	1616R/L10	▲	▲	16	16	16	125	16.2	2	10	ZDR0210Q	GB70-95-M4 × 12	WH30L
	1616R/L14	▲	▲	16	16	16	125	16.2	2	14	ZDR0210Q	GB70-95-M4 × 12	WH30L
	2020R/L07	▲	▲	20	20	20	125	20.2	2	7	ZDR0210Q	GB70-95-M4 × 12	WH30L
	2020R/L10	▲	▲	20	20	20	125	20.2	2	10	ZDR0210Q	GB70-95-M4 × 12	WH30L
	2020R/L14	▲	▲	20	20	20	125	20.2	2	14	ZDR0210Q	GB70-95-M4 × 12	WH30L
	2525R/L07	▲	▲	25	25	25	150	25.2	2	7	ZDR0210Q	GB70-95-M4 × 12	WH30L
QEED	1616R/L10	▲	▲	16	16	16	125	16.25	2.5	10	ZDQD0210Q	GB70-95-M4 × 12	WH30L
	1616R/L17	▲	▲	16	16	16	125	16.25	2.5	17	ZDQD0210Q	GB70-95-M4 × 12	WH30L
	2020R/L10	▲	▲	20	20	20	125	20.25	2.5	10	ZDQD0210Q	GB70-95-M4 × 12	WH30L
	2020R/L17	▲	▲	20	20	20	125	20.25	2.5	17	ZDQD0210Q	GB70-95-M4 × 12	WH30L
	2525R/L10	▲	▲	25	25	25	150	25.25	2.5	10	ZDQD0210Q	GB70-95-M4 × 12	WH30L
QEFD	1616R/L10	▲	▲	16	16	16	125	16.3	3	10	ZDQD0310Q	GB70-95-M4 × 12	WH30L
	1616R/L17	▲	▲	16	16	16	125	16.3	3	17	ZDQD0310Q	GB70-95-M4 × 12	WH30L
	2020R/L10	▲	▲	20	20	20	125	20.3	3	10	ZDQD0310Q	GB70-95-M4 × 12	WH30L
	2020R/L17	▲	▲	20	20	20	125	20.3	3	17	ZDQD0310Q	GB70-95-M4 × 12	WH30L
	2525R/L10	▲	▲	25	25	25	150	25.3	3	10	ZDQD0310Q	GB70-95-M4 × 12	WH30L
QEGD	2020R/L13	▲	▲	20	20	20	140	20.4	4	13	ZDQD0410Q	GB70-95-M4 × 12	WH30L
	2020R/L22	▲	▲	20	20	20	140	20.4	4	22	ZDQD0410Q	GB70-95-M4 × 12	WH30L
	2525R/L13	▲	▲	25	25	25	150	25.4	4	13	ZDQD0410Q	GB70-95-M4 × 12	WH30L

▲ Stock available △ Make-to-order

Specification of products

Including type, basic dimensions, applicable inserts and accessories.

Internal grooving and turning tools

Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	DCON	LF	WF	CW	CDX _{min}	DMIN				
C200-QEDR/L05-27	▲	▲	20	180	15.2	2.5	5	27		ZTE0025Q	GB70-95-M4 × 12	WH30L
C25R-QEDR/L07-33	▲	▲	25	200	20.3	2.5	7	33		ZRE025Q	GB70-95-M5 × 16	WH40L
C325-QEDR/L09-42	▲	▲	32	250	25.3	2.5	9	42		ZRF030Q	GB70-95-M5 × 20	WH40L
C200-QFDR/L05-27	▲	▲	20	180	15.2	3	5	27		ZTF030Q	GB70-95-M4 × 12	WH30L
C25R-QFDR/L07-33	▲	▲	25	200	20.3	3	7	33		ZRF030Q	GB70-95-M5 × 16	WH40L
C325-QFDR/L09-42	▲	▲	32	250	25.3	3	9	42		ZRF030Q	GB70-95-M5 × 20	WH40L
C25R-QGDR/L08-35	▲	▲	25	200	21.5	4	8	35		ZTG041Q	GB70-95-M5 × 16	WH40L
C325-QGDR/L11-44	▲	▲	32	250	27.5	4	11	44		ZTG041Q	GB70-95-M6 × 20	WH50L
C40T-QGDR/L13-54	▲	▲	40	300	33.5	4	13	54		ZRH05Q	GB70-95-M6 × 20	WH40L
C25R-QHDR/L08-35	▲	▲	25	200	21.5	5	8	35		ZTH05Q	GB70-95-M6 × 16	WH40L
C325-QHDR/L11-44	▲	▲	32	250	27.5	5	11	44		ZTH05Q	GB70-95-M6 × 20	WH50L
C40T-QHDR/L13-54	▲	▲	40	300	33.5	5	13	54		ZRH05Q	GB70-95-M6 × 20	WH50L
C25R-QKDR/L08-35	▲	▲	25	200	21.5	6	8	35		ZTK06Q	GB70-95-M5 × 16	WH40L
C325-QKDR/L11-44	▲	▲	32	250	27.5	6	11	44		ZTK06Q	GB70-95-M6 × 20	WH50L
C40T-QKDR/L13-54	▲	▲	40	300	33.5	6	13	54		ZTK06Q	GB70-95-M6 × 20	WH50L

▲ Stock available △ Make-to-order

Profile turning tools for Al

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
	R	L	DMIN	DCON	WF	LF	CDX			
C40X-QLDR/L65-15A	▲	▲	160	40	21	320	65	ZRLD08-LH		
C40X-QLDR/L80-15A	▲	▲	160	40	21	320	80	ZRLD08-LH	GB70-95-M6 × 20	WH50L
C40X-QKDR/L60-15A	▲	▲	160	40	20	320	60	ZRKD06-LH		
C40X-QKDR/L75-15A	▲	▲	160	40	20	320	75	ZRKD06-LH		

▲ Stock available △ Make-to-order

Indicating the minimum machining diameter

The minimum machining diameter is very important for internal machining.



TURNING



Parting and grooving tools



Parting and grooving tools overview	A230-A232
Parting and grooving inserts	A233-A253
Introduction of G-series parting and grooving tools	A233-A234
Introduction of QC series shallow grooving tools	A235
Introduction of little squirrel series inserts chipbreaker	A236-A239
Parting, grooving and profiling inserts code key	A240
Inserts of little squirrel series	A241-A247
G-series parting and grooving inserts	A248-A249
QC series shallow grooving inserts code key	A250
QC series shallow grooving inserts	A251-A252
Inserts of ZQMX series	A253
Parting and grooving tools	A254-A282
Little squirrel series	
Little squirrel series parting and grooving tools code key	A254-A255
External parting, grooving and turning tools	A256-A257
Precise grooving and turning tools	A257
External recess and profiling tools	A258
External grooving tools for difficult-to-machine materials	A258
External parting blade and holder for external parting	A259
End surface grooving and turning tools	A260-A265
L type tools for surface grooving and turning	A266-A267
Internal grooving and turning tools	A268
Profile turning tools for Al	A268
G-series parting and grooving tools	
External parting, grooving and turning tools	A269
End surface grooving and turning tools	A270-A275
L type tools for surface grooving and turning	A276-A277
Internal grooving and turning tools	A278
QC series shallow grooving tools	
QC series shallow grooving tools code key	A279
External shallow grooving tools	A280
Internal shallow grooving tools	A280
Supplementary series	
Supplementary series parting and grooving tools code key	A281
QZQ external grooving series	A282
Application information for parting and grooving	A283-A284

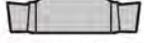
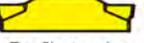
General turning

Parting and grooving

Parting and grooving tools overview

Machining application	Machining type	Applicable tools	Corresponding inserts	Tool features and parameters	
External machining	Parting	<p>Little squirrel series QZ□□+QE□□</p>  <p>A259</p>	<p>Parting inserts ZP□S□□</p> 	<ul style="list-style-type: none"> Assemble structure of parting blade and holder; good rigidity; adjustable parting range. The maximum parting diameter is 120mm. 	
		<p>Little squirrel series QE□□R/L</p>  <p>A256-A257</p>	<p>ZP□□□□</p>  <p>ZP□S□</p> 	<ul style="list-style-type: none"> Inserts have three-dimensional chipbreaker with low cutting force and good performance on chip-breaking. The maximum parting diameter is 60mm. 	
		<p>Supplementary series QZQ□□R/L</p>  <p>A282</p>	<p>ZQMX□□</p> 	<ul style="list-style-type: none"> Cutting edge strength is suitable for bad machining conditions. The maximum parting diameter is 70mm. 	
		<p>G-series GED□□R/L</p>  <p>A269</p>	<p>Parting inserts G□M□□□□□-GM</p> 	<ul style="list-style-type: none"> The special design of compression screw hole structure is adopted to realize high clamping force; the screw itself can form self-locking to ensure more reliable compression force. High clamping stability to ensure the safety and stability of grooving and transverse turning. Applicable for a variety of grooving and profiling inserts. 	
	Grooving and turning		<p>Little squirrel series QE□□R/L</p>  <p>A256-A257</p>	<p>Double cutting edges for parting ZT□□□□</p>  <p>Profile turning ZR□□□□</p>  <p>Single cutting edge for deep grooving ZT□S□□</p> 	<ul style="list-style-type: none"> A single tool with multiple applications such as grooving, parting and profile turning, reducing tools categories needed. A multifunctional tool when used with grooving inserts. Suitable for profile machining. The maximum slot depth machinable is 30mm.
			<p>G-series GED□□R/L</p>  <p>A269</p>	<p>Parting inserts G□M□□□□□-GM</p> 	<ul style="list-style-type: none"> Reinforced grooving tools. The special design of compression screw hole structure is adopted to realize high clamping force; the screw itself can form self-locking to ensure more reliable compression force. High clamping stability to ensure the safety and stability of grooving and transverse turning. Applicable for a variety of grooving and profiling inserts.



Machining application	Machining type	Applicable tools	Corresponding inserts	Tool features and parameters
External machining	Precise grooving	Little squirrel series QECD  A257	Precise grooving ZT□□□□-EG  Edge width 1.2~2.4mm	<ul style="list-style-type: none"> Grinded insert used for precise grooving. Edge width can be anything between 1.0-6.5mm, customized according to users' needs. ZT□□□□-EG inserts: When edge width is between 1.2-2.4mm, the maximum cutting depth is 2.5mm. When edge width is above 2.4-6.5mm, the maximum cutting depth is 22mm.
		Little squirrel series QE□□R/L  A256-A257	Precise grooving ZT□□□□-EG  Edge width 2.4~6.5mm	
	Shallow grooving	QC series GQCR/L  A280	QC16/22□□□□ 	<ul style="list-style-type: none"> Fine grinding of blades with high precision. Sharp edges and high machining accuracy. Three finely ground cutting edges for good economy. For cutting shallow grooves, groove width 0.5-4.8mm. Maximum depth of cut 4mm.
Internal machining	Grooving and turning	Little squirrel series C□□-Q□□R/L□  A268	Grooving, Turning ZT□□□□  Profile turning ZR□□□□ 	<ul style="list-style-type: none"> By using inserts for grooving and profiling, one tool can be versatile, reducing the tool categories needed. The maximum slot depth machinable is 13mm. The minimum machining diameter is 27mm.
		G-series GID□□R/L  A278	Grooving inserts G□M□□□□□-GM 	
	Shallow grooving	QC series S□□□-QC□□R/L□  A280	QC11/16/22□□□□ 	<ul style="list-style-type: none"> Fine grinding of blades with high precision. Machining groove width 0.5-4.8mm. Minimum machining diameter 16mm. Maximum depth of cut 4mm.

General turning

Parting and grooving

Parting and grooving tools overview

Parting and grooving tools overview

General turning

Parting and grooving

Parting and grooving tools overview

Machining application	Machining type	Applicable tools	Corresponding inserts	Tool features and parameters	
End surface machining	Grooving and turning	<p>G-series GFDD□□R/L</p>  <p>A274-A275</p>	<p>Grooving inserts GMMD□□□□-GM</p> 	<ul style="list-style-type: none"> Achieve end face machining with a diameter of 28mm. The insert positioning structure is scientifically designed, and the first cutting range is reasonably planned to ensure that the tool body has high strength. High-strength cutter body rounded face for more precise tool selection. Grooving diameter range 28-600mm. Applicable for a variety of grooving and profiling inserts. 	
		<p>Little squirrel series QF□□□□H</p>  <p>A262-A265</p>	<p>Grooving, Turning ZT□□□□</p>  <p>Profile turning ZR□□□□</p> 	<ul style="list-style-type: none"> By using inserts for grooving and profiling, one tool can be versatile, reducing the tool categories needed. Grooving diameter is 48-400mm. Grooving depth is 10-30mm. 	
		<p>Little squirrel series QF□□□□L</p>  <p>A266-A267</p>	<p>Grooving, Turning ZT□□□□</p>  <p>Profile turning ZR□□□□</p> 	<ul style="list-style-type: none"> 90°holder, top clamping. By using inserts for grooving and profiling, one tool can be versatile, reducing the tool categories needed. Grooving diameter is 48~400mm. Grooving depth is 10~30mm. 	
Recess machining		<p>Little squirrel series QX□□□□□□</p>  <p>A258</p>	<p>Grooving, Turning ZT□□□□</p>  <p>Profile turning ZR□□□□</p> 	<ul style="list-style-type: none"> The unique tool for recess machining. Complete range of specifications, able to achieve various recess machining. 	
AI profiling	Inner wall and surface machining		<p>Little squirrel series C40X□□</p>  <p>A268</p>	<p>Little squirrel series ZR□□-LH</p> 	<ul style="list-style-type: none"> The unique tool for profiling of AI material. Cutting edge is designed to combine sharpness and strength, suitable for continuous and intermittent turning. Used for external, surface and inner wall machining of AI wheel hub.
Tools for aviation and aerospace industries	External machining		<p>Little squirrel series QE□□□□□N</p>  <p>A258</p>	<p>Little squirrel series ZIG□□□</p>  <p>Little squirrel series ZIMF□□</p> 	<ul style="list-style-type: none"> V-type locating, top clamping, precise locating, safe clamping. Normal square-ended inserts and precise square-ended inserts are suitable for adhesive materials hard to machine such as Ni-base high-temperature alloy, Ti alloy and stainless steel, etc.
	Non-standard Tools		<p>Non-standard tools to match workpiece</p>	<p>Select and manufacture as required</p>	<ul style="list-style-type: none"> Tailor made solutions for machining various parts to satisfy your requirements.

G-series

high-efficiency parting & grooving inserts

Better clamping stability:

- The new inserts clamping design achieves higher clamping force and better processing;
- Anti-vibration design, excellent surface finish.

High precision inserts:

Edge width 2-4mm, the tolerance of edge width reach $\pm 0.03\text{mm}$;
Edge width 5-6mm, the tolerance of edge width reach $\pm 0.04\text{mm}$;
High consistency of inserts, realizing high-precision machining.

Strengthen the pressing position of the toolholder to ensure the clamping force of the inserts

Wider processing range:



The minimum cutting diameter of the end face can reach $\phi 28\text{mm}$

The minimum processing diameter of the inner hole can reach $\phi 20\text{mm}$

Reinforced structure design of cutter body position

*GIMD / GRMD type inserts can't be installed on little squirrel series parting and grooving holders.

Good chip treatment -GM chipbreaker

Bevel design:

Control chip curled upward and removal.

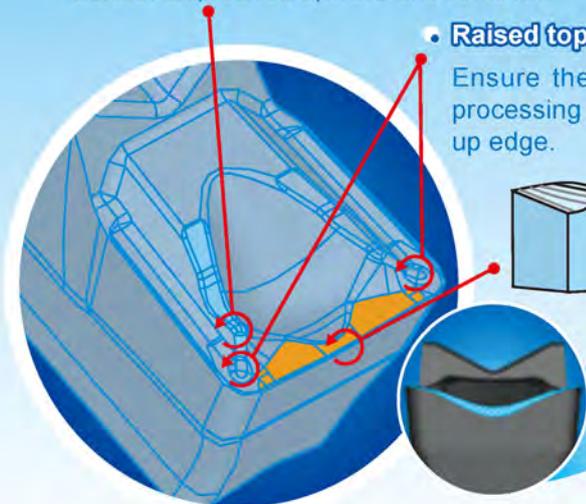
Raised top:

Ensure the chips curled and broken during processing and inhibit the generation of built-up edge.



The variable rake angle design of the rake face ensures the sharpness and strength of the insert edge.

Curved cutting edge structure design, self-centering processing, can meet various processing conditions such as low and high feed, continuous and intermittent etc., strong versatility.



G-series



Supercrystalline Nano Coating

YB9120

Add tough alloy elements to TiAlN coating to obtain high toughness TiAlN-based ceramic coating; Achieve synergistic improvement of coating wear resistance, toughness and high-temperature service performance, grooving and parting PVD coating grades, can meet the processing requirements of P, M, K materials such as parting, grooving, profiling, etc., to achieve long life and safety efficient processing.



YBC103

A new generation of CVD-coated grades, comprehensively improved the performance of insert edge strength, wear resistance and high temperature oxidation resistance, suitable for efficient processing of various steel materials.

Application case

● Chip curled stably:

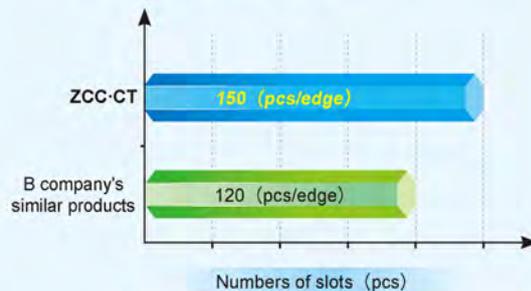
Machined material: Stainless steel/45#
Cutting parameters: $V_c = 150\text{m/min}$, $f = 0.15\text{mm/r}$
Inserts: GTMD304-GM/YB9120



Under the same working conditions, our company's GTMD series grooving inserts have better chip breaking performance, which can reduce the downtime for chip removal.

● Excellent performance on machining:

Machined material: Cast iron
Cutting parameters: $V_c = 180\text{m/min}$, $f = 0.15\text{mm/r}$
Inserts: GTMD304-GM/YBC103



Under the same working conditions, our company's GTMD series inserts have better wear resistance, tool life is longer.

Little squirrel series

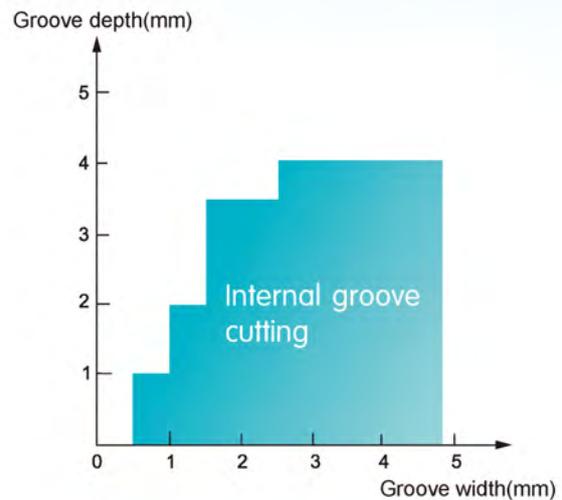
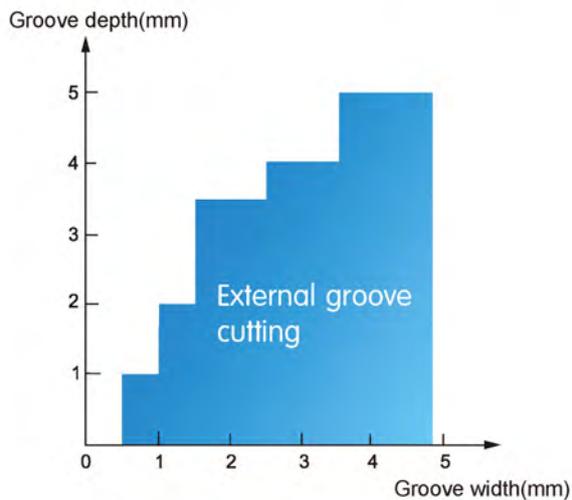


QC series shallow grooving tools

Machine industry shallow groove processing tool

Widely used for shallow groove machining of shaft and ring parts in machinery industry

○ Shallow groove series tool grooving range



Little-Squirrel Series

Profile turning inserts for parting of aviation titanium alloy, super alloy

-NF

Single-headed precision profile turning inserts

Sharp edge, small cutting force, good surface quality;
Indexing accuracy reaches $\pm 0.025\text{mm}$, safe and stable clamping;
Mainly applied in finishing of super alloy, titanium alloy.

-NM

Precision profile turning inserts

Sharp edge, small cutting force, good surface quality;
Indexing accuracy reaches $\pm 0.025\text{mm}$;
Highly economical, two edges available;
Compatible with little squirrel tool holder, suitable for small depth profile finishing and semi-finishing of super alloy and titanium alloy.



-SM

Single-headed groove turning inserts

Straight edge, excellent surface quality;
Sharp edge, smaller cutting force;
Good chip breaking;
Mainly used for rough machining of super alloy and titanium alloy.



-MM

Straight edge groove turning inserts

High edge strength, sharp edge;
Highly economical, two edges available, compatible with little squirrel tool holder;
With special grades, suitable for roughing with small cutting depths of super alloy and titanium alloy.



Case

Insert: YBG105/ZIMF604N-SM
Hardness of workpiece material: GH4169(HB380)
Cutting data: $v_c=45\text{m/min}$, $f=0.2\text{mm/r}$
Coolant: Water



Products of company A



YBG105/ZIMF604N-SM

Conclusion: Under the same conditions, chip breaking performance is better and the stop time to remove long winding chips is reduced.

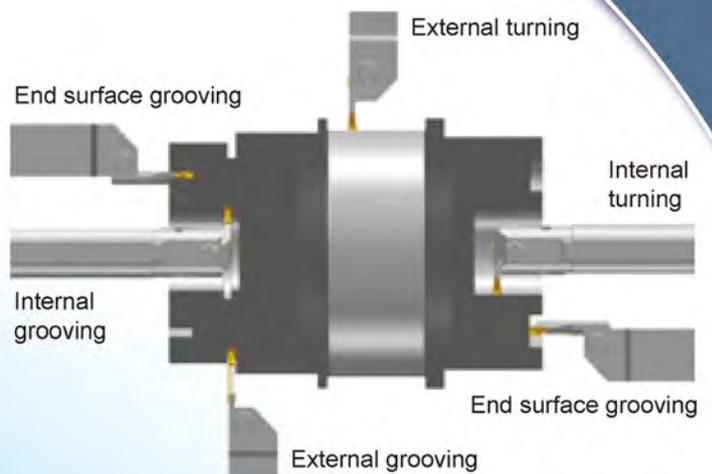
-MG Chipbreaker

Customized -MG chipbreaker series

Suitable for parting, grooving, profile turning and turning, etc. Easy machining and unobstructed chip flow lead to improved surface quality.

Human-centered design realizes various application of one single insert, reducing number of tools needed

The insert with same edge width can fit on corresponding tool holders to satisfy the requirements of external, internal and end face grooving or turning by using minimum numbers of inserts and tool holders, effectively reducing cost of tool storage and management.



The cutting force is reduced by 20%, and the vibration is diminished.

Unique and professional structure design of parting inserts

- A special flank structure is designed to reduce cutting resistant force by 20% and diminish vibration, which improves the surface quality.
- A special edge design requires less rigidity of machine. It can be used on low power machines.



Little squirrel series

-EG

Precision grooving and profile turning inserts

Special chipbreaker design, suitable for precise grooving of low-carbon steel, stainless steel, adhesive materials and non-ferrous metal.

The tolerance of the edge width CW of precise grooving and profiling inserts can reach ± 0.025 . Inserts can also be mounted on the corresponding specifications of original tool series.

-EG Precision grooving inserts

The edge width can be anything between **1.0-6.5mm** according to your requirements.



The width of the Little Squirrel series precise grooving inserts can be anything between 1.0mm to 6.5mm, which means products with any edge width or nose radius can be provided according to customers' requirements. The inserts are mainly used for precise grooving, such as sealing slot and locating slot, etc.

-EG Precision profile turning inserts



The Little Squirrel series precise profiling and turning inserts are mainly used for precise grooving and profiling.

-LC/-LH



Profile turning inserts for Al

The special chipbreaker for aluminum profiling is designed to combine sharpness and strength of the cutting edge, effectively reducing the friction between chips and the rake face. The inserts are suitable for continuous and intermittent profiling of Al alloy.

Suitable for various machining of Al wheel boss periphery, surface and inner wall, etc.



TURNING Parting and grooving tools

Little squirrel series parting and grooving inserts

Little squirrel series parting, grooving and profiling inserts code key

General turning

Parting and grooving

Little squirrel series parting and grooving inserts

Insert applications

- ZP** > Parting **ZT** > Grooving and turning
- ZR** > Profiling

Code of locating slot

Code of locating slot	A	B	E	F	G	H	K	L
Corresponding edge width of inserts	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0

Code of cutting edge number

- S** > Single cutting edge **D** > Double cutting edge

ZP G D 04 04 - M G

Cutting edge width



- 015=1.5mm
- 02=2.0mm
- 025=2.5mm
- 03=3.0mm
- 04=4.0mm
- 05=5.0mm
- 06=6.0mm
- 08=8.0mm

Nose radius



- 02=0.2mm
- 03=0.3mm
- 04=0.4mm
- 08=0.8mm

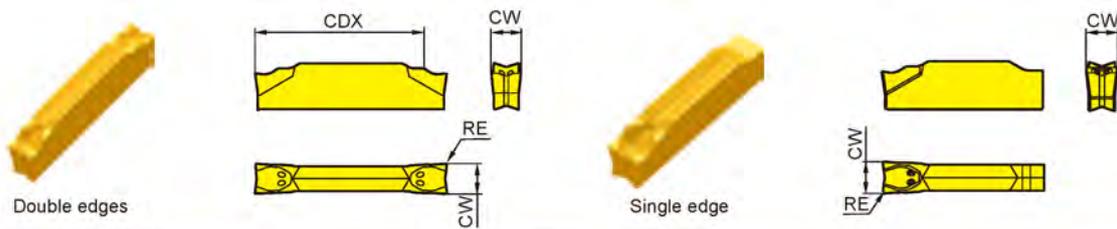
Tolerance class

- M** > M-level tolerance
- E** > E-level tolerance

Chipbreaker code

- G** > Curve edges universal chipbreaker, suitable for machining various materials
- M** > linear edges universal chipbreaker, suitable for machining various materials
- F** > Special chipbreaker

Parting inserts



Type	Basic dimensions(mm)			Grade				
	CW ^{+0.1} ₀	RE±0.1	Cutting depth CDX _{max}	CVD Coating		PVD Coating		Cemented carbide
				YBC151	YBC251	YBG202	YBG302	
Double edges	ZPAD01502-MG	1.5	0.2	12	○	★	○	
	ZPBD0202-MG	2.0	0.2	14	○	★	○	
	ZPED02502-MG	2.5	0.2	17	○	★	★	
	ZPFD0302-MG	3.0	0.2	17	○	★	○	
	ZPGD0402-MG	4.0	0.2	22	○	★	○	
	ZPHD0503-MG	5.0	0.3	22	○	★	○	
Single edge	ZPKD0604-MG	6.0	0.4	22	○	★	○	
	ZPES02502-MG	2.5	0.2		○	★	★	
	ZPFS0302-MG	3.0	0.2		○	★	○	
	ZPGS0402-MG	4.0	0.2		○	★	○	
	ZPHS0503-MG	5.0	0.3		○	★	○	
ZPKS0604-MG	6.0	0.4		○	★	○		

Single edge tool for cutter plate only

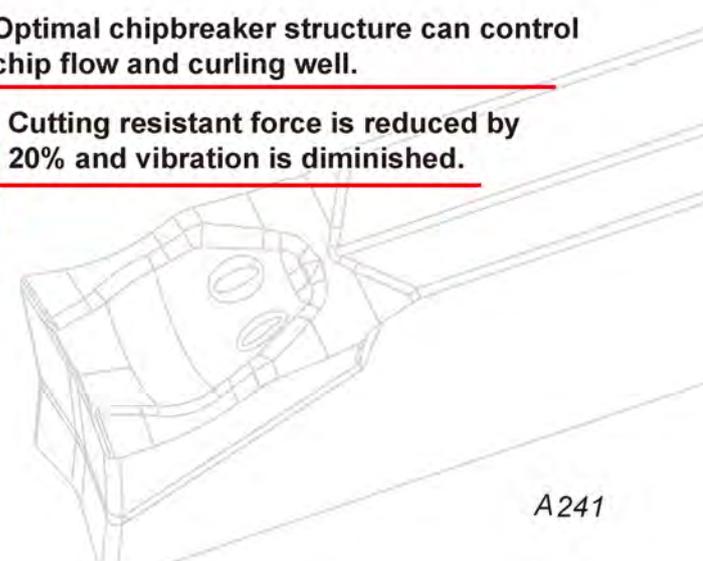
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Please reduce the feed speed by 30% when the insert is approaching the centre of workpiece. This can prolong tool life.



Optimal chipbreaker structure can control chip flow and curling well.

Cutting resistant force is reduced by 20% and vibration is diminished.

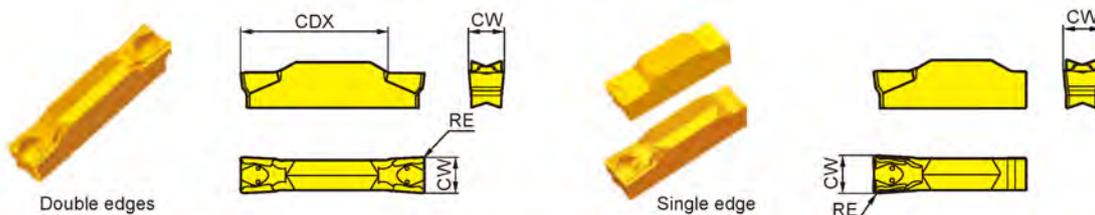


General turning

Parting and grooving

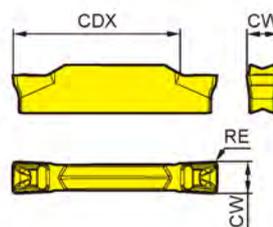
Little squirrel series parting and grooving inserts

Grooving and turning inserts



Type	Basic dimensions(mm)			Grade						
	CW ^{+0.1} ₀	RE±0.1	Cutting depth CDX _{max}	CVD Coating		PVD Coating			Cemented carbide	
				YBC151	YBC251	YBG202	YBG205	YBG302	YD101	
Double edges	ZTED02503-MG	2.5	0.3	17	○	○	●	★	★	
	ZTFD0303-MG	3.0	0.3	17	○	○	●	★	★	
	ZTGD0404-MG	4.0	0.4	22	●	○	●	★	★	
	ZTHD0504-MG	5.0	0.4	22		○	●	★	★	
	ZTKD0608-MG	6.0	0.8	22		○	●	★	★	
Single edge	ZTHS0504-MG	5.0	0.4			○	○	★	○	
	ZTKS0608-MG	6.0	0.8			○	○	★	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

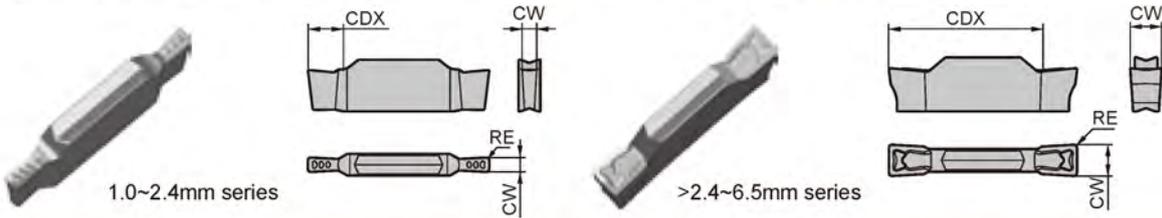


Type	Basic dimensions(mm)			Grade						
	CW	RE±0.1	Cutting depth CDX _{max}	CVD Coating		PVD Coating			Cemented carbide	
				YBC151	YBC251	YBG202	YBG205	YBG302	YD101	
Double edges	ZTAD01502-MM	1.5±0.03	0.2	12	○	○	●	★	○	
	ZTBD02002-MM	2.0±0.03	0.2	14	○	○	●	★	○	
	ZTED02503-MM	2.5±0.03	0.3	17	○	○	●	★	○	
	ZTFD0303-MM	3.0±0.03	0.3	17	○	○	●	★	○	
	ZTGD0404-MM	4.0±0.04	0.4	22	○	○	●	★	○	
	ZTHD0504-MM	5.0±0.04	0.4	22	○	○	●	★	○	
	ZTKD0608-MM	6.0±0.04	0.8	22	○	○	●	★	○	
	ZTLD0808-MM	8.0±0.05	0.8	28	○	○	●	★	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



Precise grooving and turning inserts

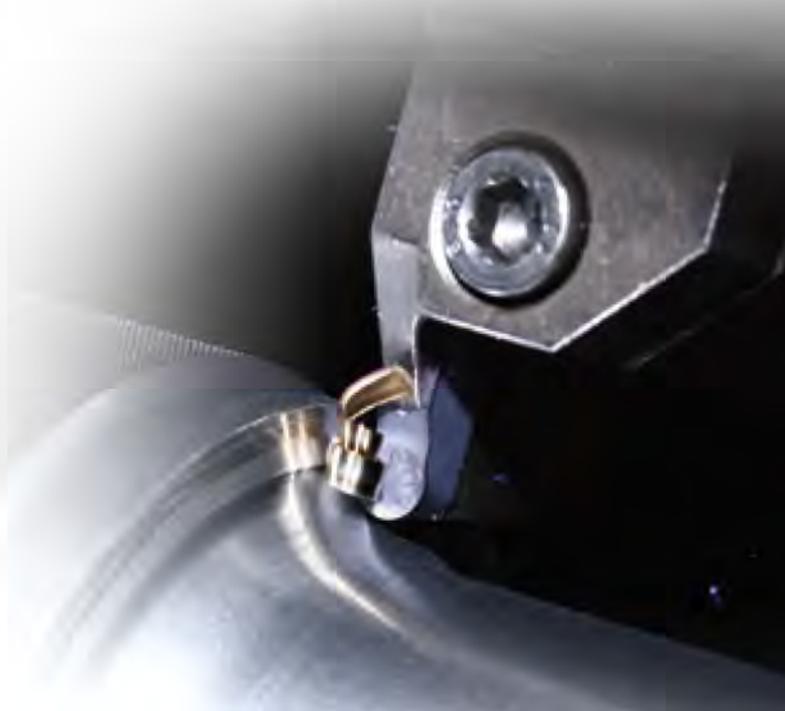


Type	Type			Grade						
				CVD Coating		PVD Coating			Cemented carbide	
	CW \pm 0.025	RE ⁽²⁾ \pm 0.05	Cutting depth CDX _{max}	YBC151	YBC251	YBG202	YBG205	YBG302	YD101	
Double edges	ZTCD□□□□□□ ⁽¹⁾ -EG	1.0~1.6	See note. (2)	2.6	○	○	○	★	○	
		1.6~2.4		3.4	○	○	○	★	○	
	ZTED□□□□□□-EG	2.4~3.0		17	○	○	○	★	○	
	ZTFD□□□□□□-EG	3.0~3.8		17	○	○	○	★	○	
	ZTGD□□□□□□-EG	3.8~4.8		22	○	○	○	★	○	
	ZTHD□□□□□□-EG	4.8~5.8		22	○	○	○	★	○	
ZTKD□□□□□□-EG	5.8~6.5	22	○	○	○	★	○			

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Note: (1) □ The code here in the description is determined by edge width and nose radius requested by customers. For example, when the customer requires an edge width of 3.5mm and a nose radius of 0.3mm, the description of the insert would be ZTFD03503-EG.

(2) The nose radius range is 0.2≤R≤0.5 on request.

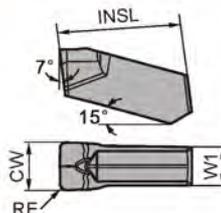


General turning

Parting and grooving

Little squirrel series parting and grooving inserts

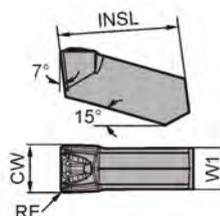
Single-head grooving and turning inserts for semi-finishing and roughing difficult-to-machine materials



Type	Basic dimensions(mm)				Grade				
					PVD Coating				Cemented carbide
	CW±0.05	RE±0.1	W1	INSL	YBG102	YBG202	YBG205	YBS103	YD101
ZIMF304N-NM	3	0.4	2.4	15.3	★	○	★	●	○
ZIMF406N-NM	4	0.6	3.2	15.3	★	○	★	●	○
ZIMF506N-NM	5	0.6	4.0	15.3	★	○	★	○	○
ZIMF608N-NM	6	0.8	4.0	15.3	★	○	★	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Single-head grooving and turning inserts for semi-finishing and roughing difficult-to-machine materials

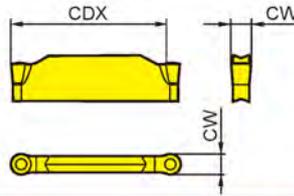


Type	Basic dimensions(mm)				Grade				
					PVD Coating				Cemented carbide
	CW±0.05	RE±0.1	W1	INSL	YBG105	YBG212	YBG205	YBS103	YD101
ZIMF304N-SM	3	0.4	2.4	15.3	★	★		●	○
ZIMF404N-SM	4	0.4	3.2	15.3	★	★		○	○
ZIMF504N-SM	5	0.4	4.0	15.3	★	★		○	○
ZIMF604N-SM	6	0.4	5.1	15.3	★	★		○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



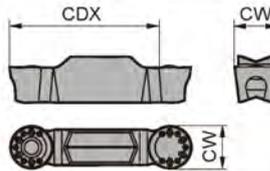
Profiling inserts



	Type	Basic dimensions(mm)		Grade					
				CVD Coating		PVD Coating			Cemented carbide
		$CW^{+0.1}_0$	Cutting depth CDX_{max}	YBC151	YBC251	YBG202	YBG205	YBG302	YD101
Double edges	ZRED025-MG	2.5	17.5		○	●	★	★	
	ZRFD03-MG	3.0	17		○	●	★	★	
	ZRGD04-MG	4.0	21		○	●	★	★	
	ZRHD05-MG	5.0	20		○	○	★	★	
	ZRKD06-MG	6.0	19		○	●	★	★	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

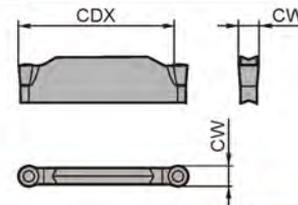
Profiling inserts



	Type	Basic dimensions(mm)		Grade					
				CVD Coating		PVD Coating			Cemented carbide
		$CW^{+0.25}_0$	Cutting depth CDX_{max}	YBC151	YBC251	YBG105	YBG212	YBG302	YBS103
Double edges	ZRFD03-NM	3	17			★	★		●
	ZRGD04-NM	4	21			★	★		●
	ZRHD05-NM	5	20			★	★		○
	ZRKD06-NM	6	19			★	★		○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Precision profiling inserts



	Type	Basic dimensions(mm)		Grade				
				CVD Coating		PVD Coating		Cemented carbide
		$CW_{\pm 0.025}$	Cutting depth CDX_{max}	YBC151	YBC251	YBG202	YBG302	YD101
Double edges	ZRFD03-EG	3.0	17		○		○	
	ZRGD04-EG	4.0	21		○		○	
	ZRHD05-EG	5.0	20		○		○	
	ZRKD06-EG	6.0	19		○		○	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

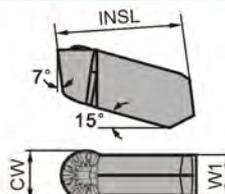
General turning

Parting and grooving

Little squirrel series parting and grooving inserts



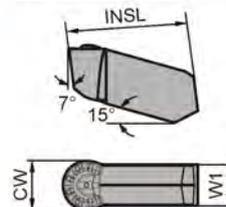
Single-head inserts for profiling difficult-to-machine materials



Type	Basic dimensions(mm)			Grade			
				PVD Coating			Cemented carbide
	CW \pm 0.025	W1	INSL	YBG102	YBG202	YBS103	YD101
ZIGQ3N-NM	3	2.4	15.3	★	○	●	○
ZIGQ4N-NM	4	3.2	15.3	★	○	●	○
ZIGQ5N-NM	5	4.0	15.3	★	○	○	○
ZIGQ6N-NM	6	5.0	15.3	★	○	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Single-head inserts for profiling difficult-to-machine materials



Type	Basic dimensions(mm)			Grade			
				PVD Coating			Cemented carbide
	CW \pm 0.025	W1	INSL	YBG105	YBG212	YBS103	YD101
ZIGQ3N-NF	3	2.4	15.3	★	★	●	
ZIGQ4N-NF	4	3.2	15.3	★	★	○	
ZIGQ5N-NF	5	4.0	15.3	★	★	○	
ZIGQ6N-NF	6	5.0	15.3	★	★	○	

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

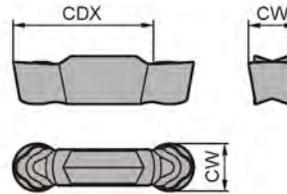
General turning

Parting and grooving

Little squirrel series parting and grooving inserts



Profiling inserts for Al



Type	Basic dimensions(mm)		Grade
	CW±0.02	Cutting depth CDX _{max}	Cemented carbide
ZRKD06-LH	6.0	19	YD101
ZRLD08-LH	8.0	22	★

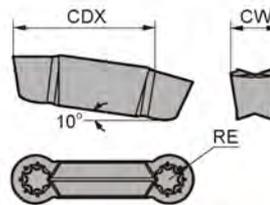
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Parting and grooving

Little squirrel series parting and grooving inserts

Profiling inserts for Al

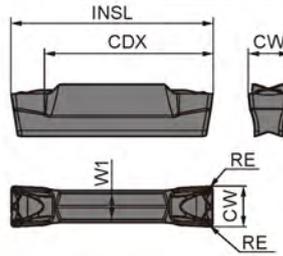


Type	Basic dimensions(mm)			Grade
	CW±0.02	RE	Cutting depth CDX _{max}	Cemented carbide
ZILD08-LC	8.0	4.0	22	YD101
				●

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



Grooving and turning inserts



General turning

Parting and grooving

G-series parting and grooving inserts

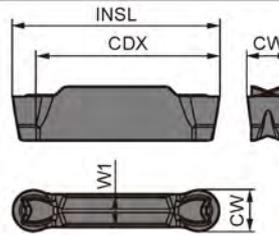
Type	Basic dimensions(mm)					Grade	
						CVD Coating	PVD Coating
	CW	W1	INSL	CDX	RE	YBC103	YB9120
GTMD2502-GM	2.5	2	17	14	0.2	●	●
GTMD302-GM	3.0	2.3	17	14	0.2	●	●
GTMD304-GM	3.0	2.3	17	14	0.4	●	●
GTMD402-GM	4.0	3.2	20	17	0.2	●	●
GTMD404-GM	4.0	3.2	20	17	0.4	●	●
GTMD504-GM	5.0	4.2	20	17	0.4	●	●
GTMD508-GM	5.0	4.2	20	17	0.8	●	●
GTMD604-GM	6.0	5.2	20	17	0.4	●	●
GTMD608-GM	6.0	5.2	20	17	0.8	●	●

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order





Profiling inserts



Type	Basic dimensions(mm)					Grade	
						CVD Coating	PVD Coating
	CW	W1	INSL	CDX	RE	YBC103	YB9120
GRMD315-GM	3.0	2.3	17	14	1.5	●	●
GRMD420-GM	4.0	3.2	20	17	2.0	●	●
GRMD525-GM	5.0	4.2	20	17	2.5	●	●
GRMD630-GM	6.0	5.2	20	17	3.0	●	●

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



General turning

Parting and grooving

G-series parting and grooving inserts

QC series shallow grooving inserts code key

● Square head shallow grooving inserts

QC

Shallow grooving inserts

22

Cutting edge length code	Inner tangent circle diameter(mm)
11	6.35
16	9.525
22	12.70

R

300

Grooving width(mm)	
Code	Width
050	0.50
100	1.00
...	...
480	4.80

R

03

Rounding or chamfering(mm)	
Code	Size
02	0.2
03	0.3
04	0.4

Direction

Code	Form
R	Rightward 
L	Leftward 

Inserts tip form

Code	Form
R	Circular arc 
C	Chamfering 

● Round head shallow grooving inserts

QC

Shallow grooving inserts

22

Cutting edge length code	Inner tangent circle diameter(mm)
11	6.35
16	9.525
22	12.70

R

Direction	
Code	Form
R	Rightward 
L	Leftward 

300

Grooving width(mm)	
Code	Width
050	0.50
100	1.00
...	...
480	4.80

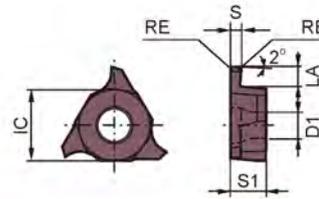
R

Head form: round head

Square head shallow grooving inserts



R-type shown



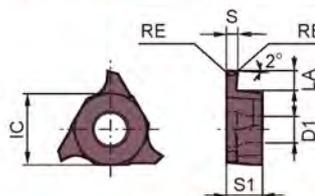
Type		Basic dimensions(mm)						Grade	
								PVD Coating	
		S±0.025	LA	RE	IC	S1	D1		
QC11R/L	120-R02	1.20	1.50	0.2	6.35	3.18	2.8	○	○
	125-R02	1.25	1.50	0.2	6.35	3.18	2.8	○	○
	145-R02	1.45	1.50	0.2	6.35	3.18	2.8	○	○
	150-R02	1.50	1.50	0.2	6.35	3.18	2.8	○	○
	200-R02	2.00	2.00	0.2	6.35	3.18	2.8	○	○
	225-R02	2.25	2.00	0.2	6.35	3.18	2.8	○	○
QC16R/L	110-R01	1.10	2.00	0.1	9.525	3.18	4.4	○	○
	125-R02	1.25	2.00	0.2	9.525	3.18	4.4	○	○
	145-R02	1.45	2.00	0.2	9.525	3.18	4.4	○	○
	150-R02	1.50	2.00	0.2	9.525	3.18	4.4	○	★
	175-R02	1.75	2.00	0.2	9.525	3.18	4.4	○	○
	185-R02	1.85	2.50	0.2	9.525	3.18	4.4	○	○
	200-R02	2.00	2.50	0.2	9.525	3.18	4.4	○	★
	250-R02	2.50	2.50	0.2	9.525	3.18	4.4	○	★
	300-R02	3.00	3.00	0.2	9.525	3.18	4.4	○	★
QC22R/L	125-R02	1.25	2.00	0.2	12.70	4.76	5.5	○	○
	145-R02	1.45	2.00	0.2	12.70	4.76	5.5	○	○
	150-R02	1.50	3.50	0.2	12.70	4.76	5.5	○	★
	175-R02	1.75	3.50	0.2	12.70	4.76	5.5	○	○
	185-R02	1.85	3.50	0.2	12.70	4.76	5.5	○	○
	200-R02	2.00	3.50	0.2	12.70	4.76	5.5	○	★
	230-R02	2.30	3.50	0.2	12.70	4.76	5.5	○	○
	250-R03	2.50	4.00	0.3	12.70	4.76	5.5	○	★
	265-R03	2.65	4.00	0.3	12.70	4.76	5.5	○	○
	280-R03	2.80	4.00	0.3	12.70	4.76	5.5	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Square head shallow grooving inserts



R-type shown



Type		Basic dimensions(mm)						Grade	
		S ± 0.025	LA	RE	IC	S1	D1	PVD Coating	
								YBG202	YBG205
QC22R/L	300-R03	3.00	4.00	0.3	12.70	4.76	5.5	○	★
	320-R03	3.20	4.00	0.3	12.70	4.76	5.5	○	○
	330-R03	3.30	4.00	0.3	12.70	4.76	5.5	○	○
	350-R03	3.50	5.00	0.3	12.70	4.76	5.5	○	★
	400-R04	4.00	5.00	0.4	12.70	4.76	5.5	○	★
	430-R04	4.30	5.00	0.4	12.70	4.76	5.5	○	○
	450-R04	4.50	5.00	0.4	12.70	4.76	5.5	○	○
	480-R04	4.80	5.00	0.4	12.70	5.06	5.5	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

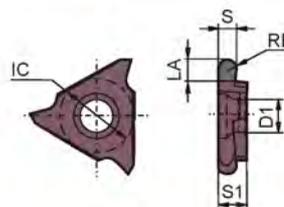
Example of special specification customization:

1. Custom-made insert width of 1.6mm, the tip form of the arc form, arc radius of 0.3mm right blade, IC value of 12.7mm, then the custom-made insert model is QC22R160-R03.
2. Customized edge width range: QC11: 0.50~3.0mm; QC16: 0.50~3.0mm; QC22: 1.0~4.8mm.

Round head shallow grooving inserts



R-type shown



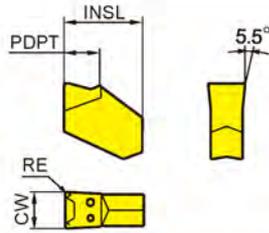
Type		Basic dimensions(mm)						Grade	
		S ± 0.025	LA	RE	IC	S1	D1	PVD Coating	
								YBG202	YBG205
QC16R/L	200R	2.00	2.50	1.00	12.70	3.18	4.4	○	○
	300R	3.00	2.50	1.50	12.70	3.18	4.4	○	○
QC22R/L	100R	1.00	2.00	0.50	12.70	4.76	5.5	○	○
	150R	1.50	3.50	0.75	12.70	4.76	5.5	○	○
	200R	2.00	3.50	1.00	12.70	4.76	5.5	○	○
	250R	2.50	4.00	1.25	12.70	4.76	5.5	○	○
	300R	3.00	4.00	1.50	12.70	4.76	5.5	○	○
	400R	4.00	5.00	2.00	12.70	4.76	5.5	○	○

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Example of special specification customization:

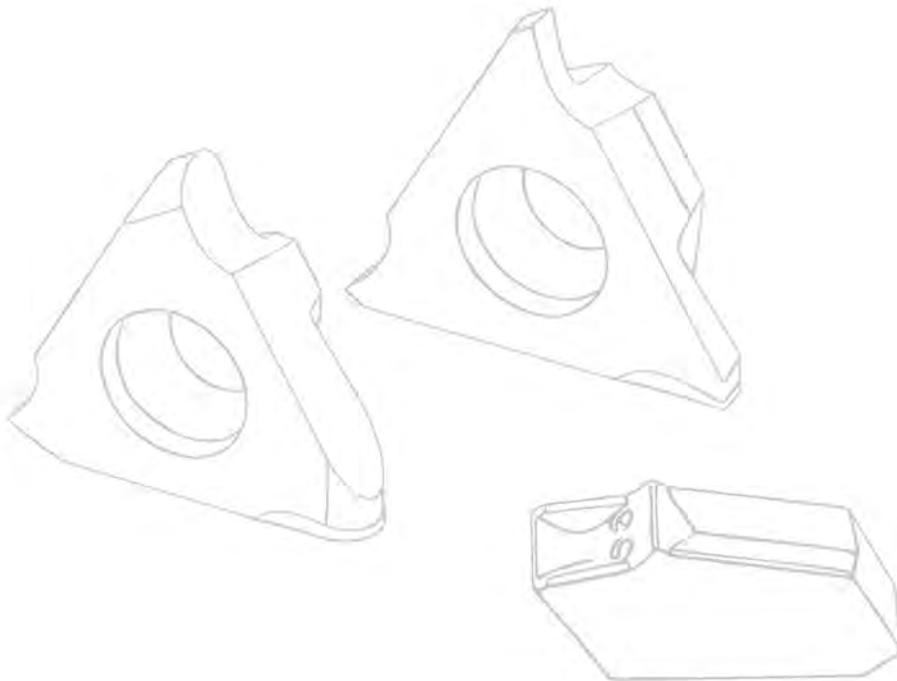
Custom-made inserts width of 1.6mm, the tip form of the arc form, the arc radius of 0.8mm right insert, then the custom-made insert model is QC22R160R.

ZQMX series



Type	Basic dimensions(mm)				Grade		
					CVD Coating	Cemented carbide	
	PDPT	CW	RE	INSL	YBC251	YC40	YD201
ZQMX3N11-1E	4.4	3.125	0.3	11	●	●	●
ZQMX4N11-1E	4.95	4.125	0.3	11	●	●	●
ZQMX5N11-1E	5.0	5.125	0.3	11	●	●	●
ZQMX6N11-1E	5.28	6.4	0.3	11	●	●	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



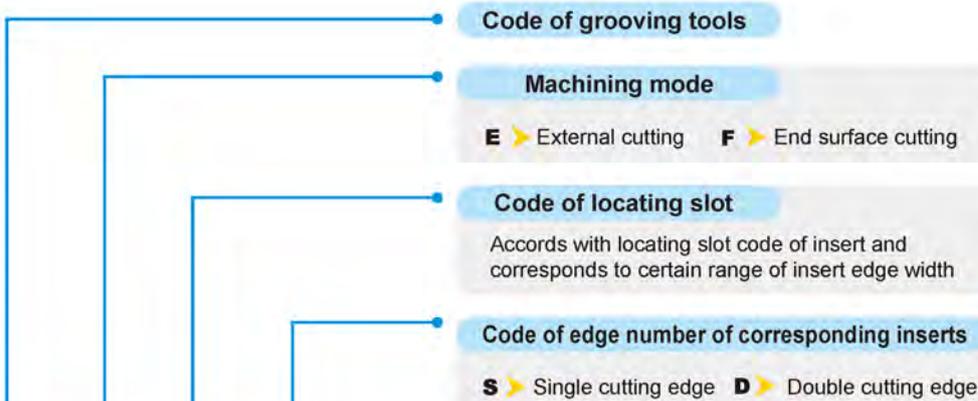
General turning

Parting and grooving

Supplementary series parting and grooving inserts

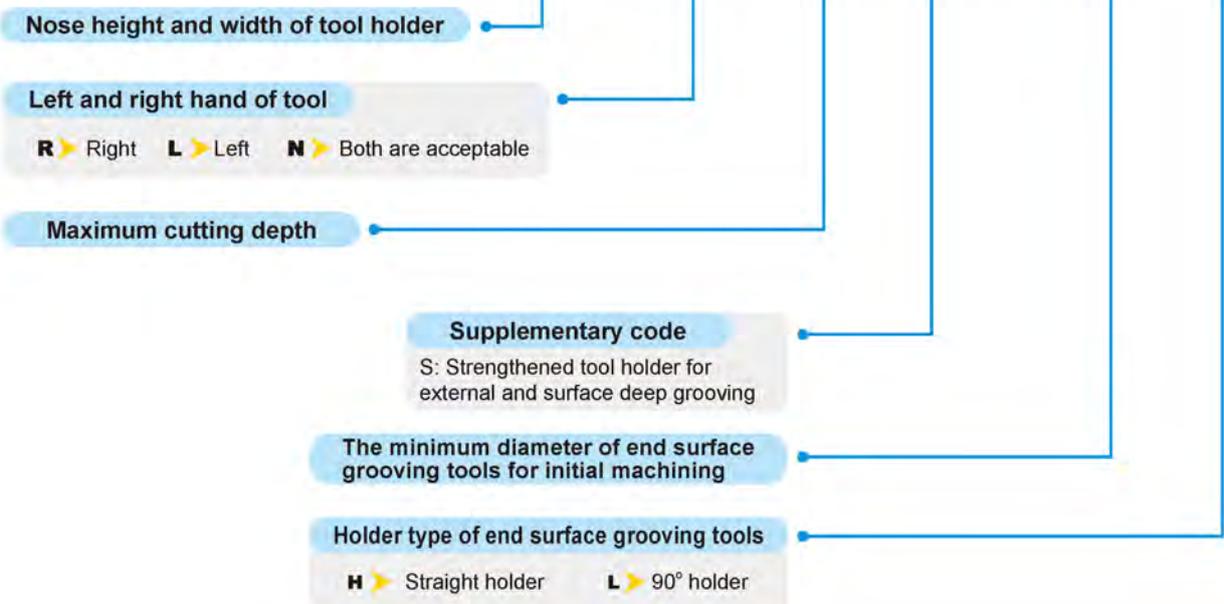
Little squirrel series parting and grooving tools code key

● External and surface turning



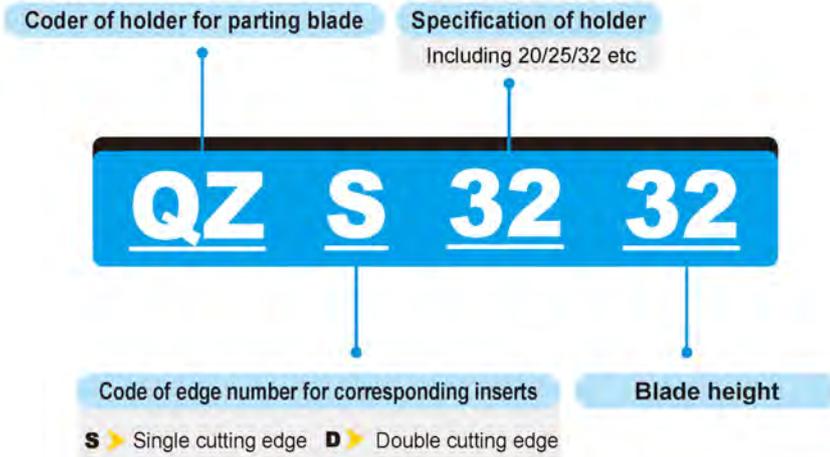
Q E G D [**2525 R S** / **32 N**]

Q F G D 2525 R 22 S - 130 H

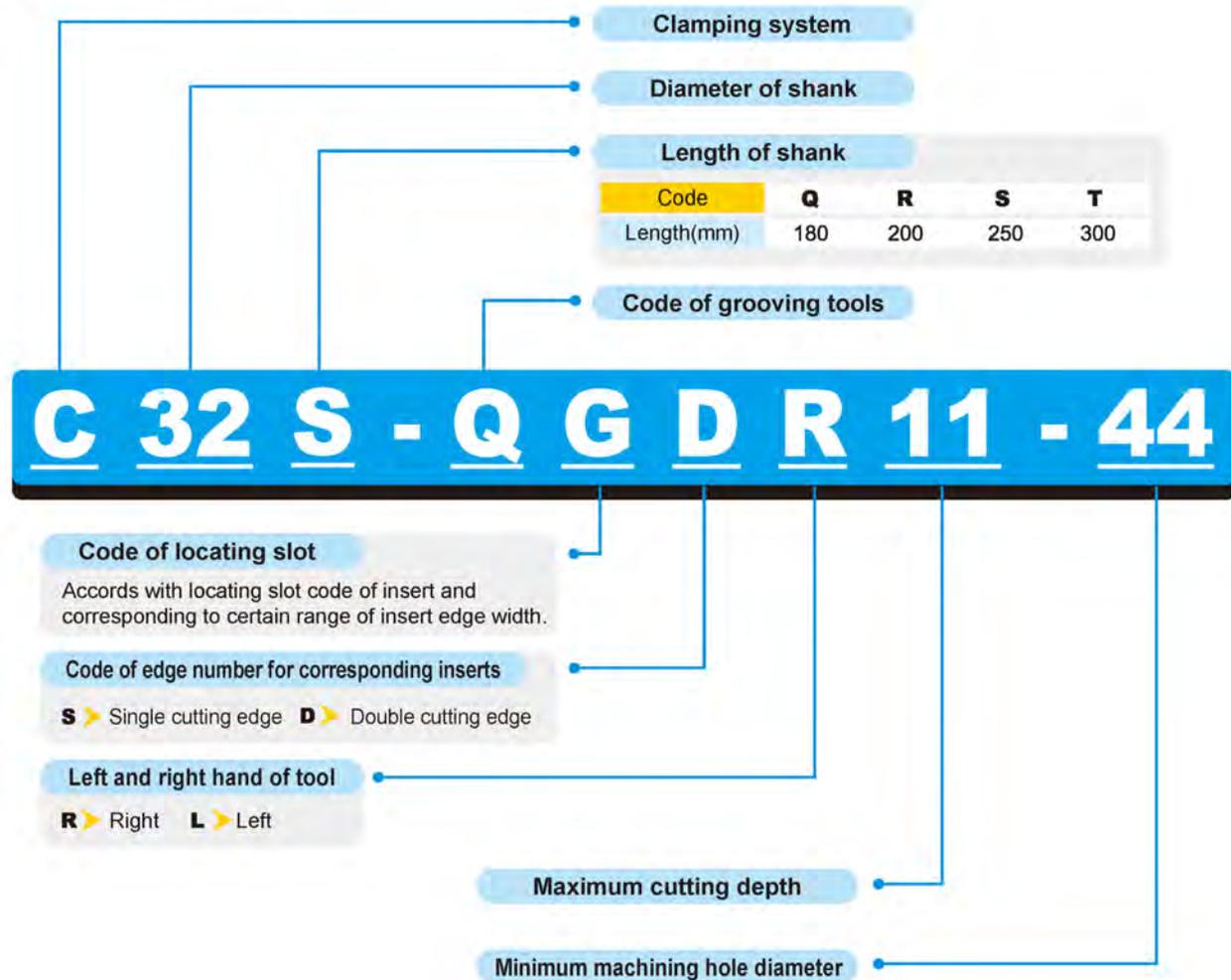


General turning
 Parting and grooving
 Little squirrel series parting and grooving tools

● Holder for parting blade



● Internal machining



General turning

Parting and grooving

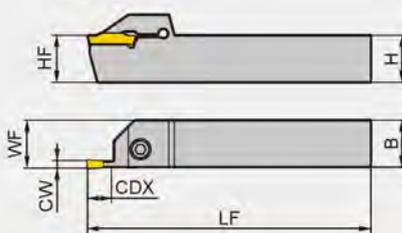
Little squirrel series parting and grooving tools



External parting, grooving and turning tools



R-type shown



General turning

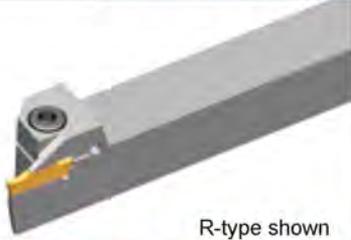
Parting and grooving

Little squirrel series parting and grooving tools

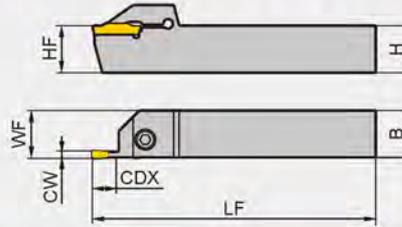
Type		Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench
		R	L	H×B	HF	LF	WF	CW	CDX _{max}			
QEAD	1212R/L07	▲	▲	12×12	12	125	12.15	1.5	7	Z□AD015□□	GB70-85-M4×12	WH30L
	1212R/L12	▲	▲	12×12	12	125	12.15	1.5	12	Z□AD015□□		
	1616R/L07	▲	▲	16×16	16	125	16.15	1.5	7	Z□AD015□□		
	1616R/L12	▲	▲	16×16	16	125	16.15	1.5	12	Z□AD015□□		
	2020R/L07	▲	▲	20×20	20	125	20.15	1.5	7	Z□AD015□□		
	2020R/L12	▲	▲	20×20	20	125	20.15	1.5	12	Z□AD015□□		
QEBD	1212R/L07	▲	▲	12×12	12	125	12.2	2	7	Z□BD02□□	GB70-85-M4×12	WH30L
	1212R/L10	▲	▲	12×12	12	125	12.2	2	10	Z□BD02□□		
	1212R/L14	▲	▲	12×12	12	125	12.2	2	14	Z□BD02□□		
	1616R/L07	▲	▲	16×16	16	125	16.2	2	7	Z□BD02□□		
	1616R/L10	▲	▲	16×16	16	125	16.2	2	10	Z□BD02□□		
	1616R/L14	▲	▲	16×16	16	125	16.2	2	14	Z□BD02□□		
	2020R/L07	▲	▲	20×20	20	125	20.2	2	7	Z□BD02□□	GB70-85-M5×16	WH40L
	2020R/L10	▲	▲	20×20	20	125	20.2	2	10	Z□BD02□□		
	2020R/L14	▲	▲	20×20	20	125	20.2	2	14	Z□BD02□□		
	2525R/L07	▲	▲	25×25	25	150	25.2	2	7	Z□BD02□□		
	2525R/L10	▲	▲	25×25	25	150	25.2	2	10	Z□BD02□□		
	2525R/L14	▲	▲	25×25	25	150	25.2	2	14	Z□BD02□□		
QEED	1616R/L10	▲	▲	16×16	16	125	16.25	2.5	10	Z□ED025□□	GB70-85-M5×20	WH40L
	1616R/L17	▲	▲	16×16	16	125	16.25	2.5	17	Z□ED025□□		
	2020R/L10	▲	▲	20×20	20	125	20.25	2.5	10	Z□ED025□□		
	2020R/L17	▲	▲	20×20	20	125	20.25	2.5	17	Z□ED025□□		
	2525R/L10	▲	▲	25×25	25	150	25.25	2.5	10	Z□ED025□□		
	2525R/L17	▲	▲	25×25	25	150	25.25	2.5	17	Z□ED025□□		
QEFD	1616R/L10	▲	▲	16×16	16	125	16.3	3	10	Z□FD03□□	GB70-85-M5×20	WH40L
	1616R/L17	▲	▲	16×16	16	125	16.3	3	17	Z□FD03□□		
	2020R/L10	▲	▲	20×20	20	125	20.3	3	10	Z□FD03□□		
	2020R/L17	▲	▲	20×20	20	125	20.3	3	17	Z□FD03□□		
	2525R/L10	▲	▲	25×25	25	150	25.3	3	10	Z□FD03□□		
	2525R/L17	▲	▲	25×25	25	150	25.3	3	17	Z□FD03□□		
QEGD	2020R/L13	▲	▲	20×20	20	140	20.5	4	13	Z□GD04□□	GB70-85-M6×20	WH50L
	2020R/L22	▲	▲	20×20	20	140	20.5	4	22	Z□GD04□□		
	2525R/L13	▲	▲	25×25	25	150	25.5	4	13	Z□GD04□□		

▲Stock available △Make-to-order

External parting, grooving and turning tools



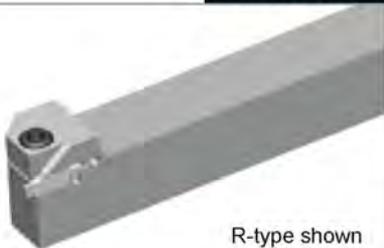
R-type shown



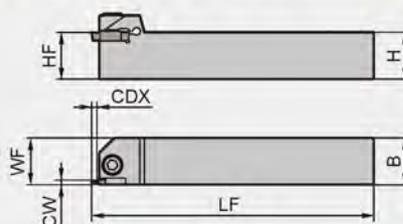
Type		Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench
		R	L	H×B	HF	LF	WF	CW	CDX _{max}			
QEGD	2525R/L22	▲	▲	25×25	25	150	25.5	4	22	Z□GD04□□	GB70-85-M6×20	WH50L
	3232R/L13	▲	▲	32×32	32	170	32.5	4	13	Z□GD04□□		
	3232R/L22	▲	▲	32×32	32	170	32.5	4	22	Z□GD04□□		
QEHD	2525R/L13	▲	▲	25×25	25	150	25.5	5	13	Z□HD05□□	GB70-85-M6×20	WH50L
	2525R/L22	▲	▲	25×25	25	150	25.5	5	22	Z□HD05□□		
QEHS	2525N30	▲	▲	25×25	25	150	15	5	30	Z□HS05□□		
QEHD	3232R/L13	▲	▲	32×32	32	170	32.5	5	13	Z□HD05□□		
	3232R/L22	▲	▲	32×32	32	170	32.5	5	22	Z□HD05□□		
QEHS	3232N30	▲	▲	32×32	32	170	18.5	5	30	Z□HS05□□		
QEKD	2525R/L13	▲	▲	25×25	25	150	25.6	6	13	Z□KD06□□	GB70-85-M6×20	WH50L
	2525R/L22	▲	▲	25×25	25	150	25.6	6	22	Z□KD06□□		
QEKs	2525N30	▲	▲	25×25	25	150	15.5	6	30	Z□KS06□□		
QEKD	3232R/L13	▲	▲	32×32	32	170	32.6	6	13	Z□KD06□□		
	3232R/L22	▲	▲	32×32	32	170	32.6	6	22	Z□KD06□□		
QEKs	3232N30	▲	▲	32×32	32	170	19	6	30	Z□KS06□□		
QELD	2525R/L16	▲	▲	25×25	25	150	26	8	16	ZTLD0808-MM	GB70-85-M6×20	WH50L
	2525R/L25	▲	▲	25×25	25	150	26	8	25	ZTLD0808-MM	GB70-85-M6×20	WH50L
	3232R/L28	▲	▲	32×32	32	170	33	8	28	ZTLD0808-MM	GB70-85-M8×30	WH60L

▲Stock available △Make-to-order

Precision grooving and turning tools



R-type shown



Type		Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench
		R	L	H×B	HF	LF	WF	CW	CDX _{max}			
QECD	1616R/L025	△	△	16×16	26	125	14.75	1.0~2.4	2.5	ZTC□□□□□□-EG	GB70-85-M5×20	WH40L
	2020R/L025	▲	△	20×20	20	125	18.75				GB70-85-M6×20	WH50L
	2525R/L025	▲	△	25×25	25	150	23.75				GB70-85-M6×20	WH50L

▲Stock available △Make-to-order

General turning

Parting and grooving

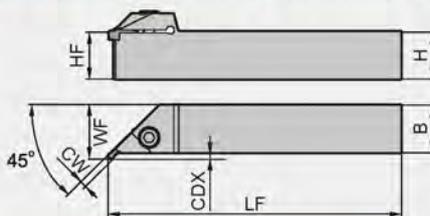
Little squirrel series parting and grooving tools



External recess and profiling tools



R-type shown



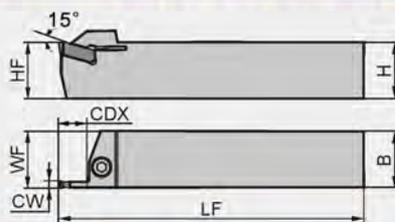
Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
		R	L	H×B	HF	LF	WF	CW				CDX _{max}
QXFD	2020R/L03-45	△	△	20×20	20	125	23			ZR(T)FD03-□□	GB70-85-M6×20	WH50L
	2525R/L03-45	△	△	25×25	25	150	28	3.0	3.0			
	3232R/L03-45	△	△	32×32	32	170	35					
QXGD	2020R/L03-45	△	△	20×20	20	125	23			ZR(T)GD04-□□		
	2525R/L03-45	△	△	25×25	25	150	28	4.0	3.0			
	3232R/L03-45	△	△	32×32	32	170	35					
QXHD	2020R/L04-45	△	△	20×20	20	125	24			ZR(T)HD05-□□		
	2525R/L04-45	△	△	25×25	25	150	29	5.0	4.0			
	3232R/L04-45	△	△	32×32	32	170	36					
QXKD	2020R/L04-45	△	△	20×20	20	125	24			ZR(T)KD06-□□		
	2525R/L04-45	△	△	25×25	25	150	29	6.0	4.0			
	3232R/L04-45	△	△	32×32	32	170	36					

▲Stock available △Make-to-order

External grooving tools for difficult-to-machine materials



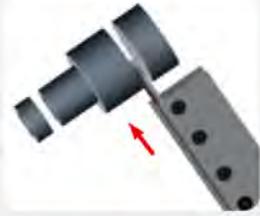
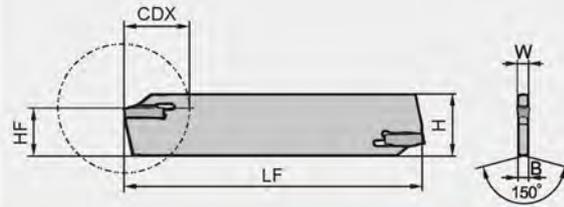
R-type shown



Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
		R	L	H×B	HF	LF	WF	CW				CDX _{max}
QEFS	2525R/L12-3N	△	△	25×25	25	150	25.3	3	12	ZIGQ3N-□□ ZIMF304N-□□	GB70-85-M6×20	WH50L
	3232R/L22-3N	△	△	32×32	32	170	32.3	3	22			
QEGS	2525R/L12-4N	△	△	25×25	25	150	25.3	4	12	ZIGQ4N-□□ ZIMF40□N-□□		
	3232R/L22-4N	△	△	32×32	32	170	32.3	4	22			
QEHS	2525R/L12-5N	△	△	25×25	25	150	25.4	5	12	ZIGQ5N-□□ ZIMF50□N-□□		
	3232R/L22-5N	△	△	32×32	32	170	32.4	5	22			
QEKS	2525R/L12-6N	△	△	25×25	25	150	25.4	6	12	ZIGQ6N-□□ ZIMF60□N-□□		
	3232R/L22-6N	△	△	32×32	32	170	32.4	6	22			

▲Stock available △Make-to-order

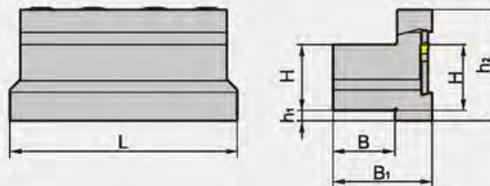
Blade for external parting



Type	Stock	Basic dimensions(mm)						Applicable inserts	Wrench
		LF	H	HF	B	W	CDX		
QEES26N	▲	110	26	19	2	2.5	60	ZPES02502-MG	W50RL
QEFS26N	▲	110	26	19	2.4	3	60	ZPFS0302-MG	
QEGS26N	▲	110	26	19	3.2	4	70	ZPGS0402-MG	
QEHS26N	▲	110	26	19	4	5	70	ZPHS0503-MG	
QEKS26N	▲	110	26	19	5	6	70	ZPKS0604-MG	
QEES32N	▲	150	32	24.6	2	2.5	100	ZPES02502-MG	
QEFS32N	▲	150	32	24.6	2.4	3	100	ZPFS0302-MG	
QEGS32N	▲	150	32	24.6	3.2	4	120	ZPGS0402-MG	
QEHS32N	▲	150	32	24.6	4	5	120	ZPHS0503-MG	
QEKS32N	▲	150	32	24.6	5	6	120	ZPKS0604-MG	

▲Stock available △Make-to-order

Holder for blade of external parting



Type	Stock	Basic dimensions(mm)						Clamp	Screw	Wrench
		L	H	h1	h2	B	B1			
QZS2026	▲	86	20	10	46.6	19	38	QZC26	GB70-85-M6×20	WH50L
QZS2526	▲	86	25	5	46.6	23	42	QZC26		
QZS3226	▲	86	30	3	51.6	30	48	QZC26		
QZS2032	▲	110	20	13	50	19	38	QZC32		
QZS2532	▲	110	25	8	50	23	42	QZC32		
QZS3232	▲	110	32	5	54	30	48	QZC32		

▲Stock available △Make-to-order

General turning

Parting and grooving

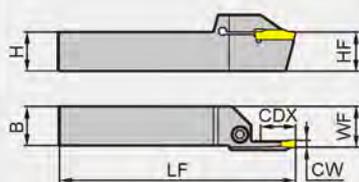
Little squirrel series parting and grooving tools



End surface grooving and turning tools



L-type shown



General turning

Parting and grooving

Little squirrel series parting and grooving tools

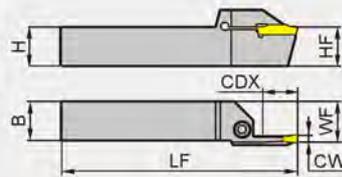
Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFFD	2020R/L7-48H	▲	▲	20×20	20	150	21	3	7	48-66	ZT(R)FD03□□-□□	GB70-85-M6×20	WH50L
	2020R/L10-48H	▲	▲	20×20	20	150	21	3	10	48-66			
	2020R/L7-60H	△	△	20×20	20	150	21	3	7	60-80			
	2020R/L10-60H	△	△	20×20	20	150	21	3	10	60-80			
	2020R/L7-74H	△	△	20×20	20	150	21	3	7	74-110			
	2020R/L10-74H	△	▲	20×20	20	150	21	3	10	74-110			
	2020R/L7-100H	△	△	20×20	20	150	21	3	7	100-150			
	2020R/L10-100H	△	△	20×20	20	150	21	3	10	100-150			
	2525R/L10-48H	▲	▲	25×25	25	150	26	3	10	48-66			
	2525R/L17-48H	▲	▲	25×25	25	150	26	3	17	48-66			
	2525R/L10-60H	▲	▲	25×25	25	150	26	3	10	60-80			
	2525R/L17-60H	▲	▲	25×25	25	150	26	3	17	60-80			
	2525R/L10-74H	▲	▲	25×25	25	150	26	3	10	74-110			
	2525R/L17-74H	▲	▲	25×25	25	150	26	3	17	74-110			
	2525R/L10-100H	▲	▲	25×25	25	150	26	3	10	100-150			
	2525R/L10-150H	△	△	25×25	25	150	26	3	10	150-260			
	2525R/L17-100H	▲	▲	25×25	25	150	26	3	17	100-150			
	2525R/L17-100H	△	△	25×25	25	150	26	3	17	150-260			
QFGD	2020R/L10-52H	△	△	20×20	20	150	21	4	10	52-72	ZT(R)GD04□□-□□	GB70-85-M6×20	WH50L
	2020R/L15-52H	△	△	20×20	20	150	21	4	15	52-72			
	2020R/L10-64H	△	▲	20×20	20	150	21	4	10	64-100			
	2020R/L15-64H	△	△	20×20	20	150	21	4	15	64-100			
	2020R/L10-90H	△	△	20×20	20	150	21	4	10	90-140			
	2020R/L15-90H	△	△	20×20	20	150	21	4	15	90-140			
	2020R/L10-130H	△	△	20×20	20	150	21	4	10	130-230			
	2020R/L15-130H	△	△	20×20	20	150	21	4	15	130-230			
	2525R/L13-52H	▲	▲	25×25	25	150	26	4	13	52-72			
	2525R/L22-52H	▲	▲	25×25	25	150	26	4	22	52-72			
	2525R/L13-64H	▲	▲	25×25	25	150	26	4	13	64-100			
	2525R/L22-64H	▲	▲	25×25	25	150	26	4	22	64-100			
	2525R/L13-90H	▲	▲	25×25	25	150	26	4	13	90-140			
	2525R/L22-90H	▲	▲	25×25	25	150	26	4	22	90-140			
	2525R/L13-130H	▲	▲	25×25	25	150	26	4	13	130-230			
	2525R/L22-130H	▲	▲	25×25	25	150	26	4	22	130-230			
	2525R/L13-220H	△	△	25×25	25	150	26	4	13	220-600			
	2525R/L22-220H	△	△	25×25	25	150	26	4	22	220-600			

▲Stock available △Make-to-order

End surface grooving and turning tools



L-type shown



Diameter range of entering



Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	∅D (min-max)				
QFHD	2525R/L13-58H	▲	▲	25×25	25	150	26	5	13	58-96	ZT(R)HD05□□-□□	GB70-85-M6×20	WH50L
	2525R/L22-58H	▲	▲	25×25	25	150	26	5	22	58-96			
	2525R/L13-86H	△	▲	25×25	25	150	26	5	13	86-140			
	2525R/L22-86H	▲	▲	25×25	25	150	26	5	22	86-140			
	2525R/L13-130H	▲	▲	25×25	25	150	26	5	13	130-200			
	2525R/L22-130H	▲	▲	25×25	25	150	26	5	22	130-200			
	2525R/L13-185H	▲	▲	25×25	25	150	26	5	13	185-400			
	2525R/L13-260H	△	△	25×25	25	150	26	5	13	260-1000			
	2525R/L22-185H	▲	▲	25×25	25	150	26	5	22	185-400			
2525R/L22-260H	△	△	25×25	25	150	26	5	22	260-1000				
QFHS	2525R/L30-185H	△	△	25×25	25	150	26	5	30	185-400	ZTHS0504-MG		
QFKD	2525R/L13-60H	▲	▲	25×25	25	150	26	6	13	60-100	ZT(R)KD06□□-□□	GB70-85-M6×20	WH50L
	2525R/L22-60H	▲	▲	25×25	25	150	26	6	22	60-100			
	2525R/L13-88H	△	▲	25×25	25	150	26	6	13	88-180			
	2525R/L22-88H	▲	▲	25×25	25	150	26	6	22	88-180			
	2525R/L13-160H	▲	▲	25×25	25	150	26	6	13	160-400			
	2525R/L13-280H	△	△	25×25	25	150	26	6	13	280-1200			
	2525R/L22-160H	▲	▲	25×25	25	150	26	6	22	160-400			
	2525R/L22-280H	△	△	25×25	25	150	26	6	22	280-1200			
QFKS	2525R/L30-160H	△	△	25×25	25	150	26	6	30	160-400	ZTKS0608-MG		
QFLD	2525R/L25-75H	▲	▲	25×25	25	150	27	8	25	75-150	ZTLD0808-MM	GB70-85-M6×20	WH50L
	2525R/L25-140H	▲	▲	25×25	25	150	27	8	25	140-400	ZTLD0808-MM	GB70-85-M6×20	WH50L
	3232R/L28-140H	▲	▲	32×32	32	170	30	8	28	140-400	ZTLD0808-MM	GB70-85-M8×30	WH60L

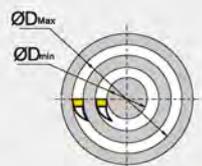
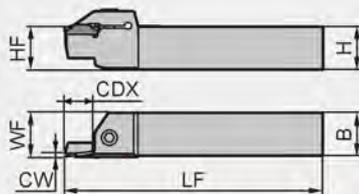
▲Stock available △Make-to-order



End surface grooving and turning tools



RR-type shown



Diameter range of entering



General turning

Parting and grooving

Little squirrel series parting and grooving tools

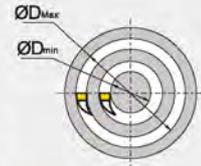
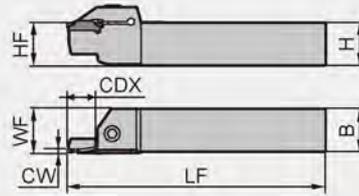
Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFFD	2020RR7-48H	△	20×20	20	150	21	3	7	48-66	ZT(R)FD03□□-□□	GB70-85-M6×20	WH50L
	2020RR10-48H	△	20×20	20	150	21	3	10	48-66			
	2020RR7-60H	△	20×20	20	150	21	3	7	60-80			
	2020RR10-60H	△	20×20	20	150	21	3	10	60-80			
	2020RR7-74H	△	20×20	20	150	21	3	7	74-110			
	2020RR10-74H	△	20×20	20	150	21	3	10	74-110			
	2020RR7-100H	△	20×20	20	150	21	3	7	100-150			
	2020RR10-100H	△	20×20	20	150	21	3	10	100-150			
	2525RR10-48H	△	25×25	25	150	26	3	10	48-66			
	2525RR17-48H	△	25×25	25	150	26	3	17	48-66			
	2525RR10-60H	△	25×25	25	150	26	3	10	60-80			
	2525RR17-60H	△	25×25	25	150	26	3	17	60-80			
	2525RR10-74H	△	25×25	25	150	26	3	10	74-110			
	2525RR17-74H	△	25×25	25	150	26	3	17	74-110			
	2525RR10-100H	△	25×25	25	150	26	3	10	100-150			
	2525RR17-100H	△	25×25	25	150	26	3	17	100-150			
QFGD	2020RR10-52H	△	20×20	20	150	21	4	10	52-72	ZT(R)GD04□□-□□	GB70-85-M6×20	WH50L
	2020RR15-52H	△	20×20	20	150	26	4	15	52-72			
	2020RR10-64H	△	20×20	20	150	21	4	10	64-100			
	2020RR15-64H	△	20×20	20	150	26	4	15	64-100			
	2020RR10-90H	△	20×20	20	150	21	4	10	90-140			
	2020RR15-90H	△	20×20	20	150	26	4	15	90-140			
	2020RR10-130H	△	20×20	20	150	21	4	10	130-230			
	2020RR15-130H	△	20×20	20	150	26	4	15	130-230			
	2525RR13-52H	△	25×25	25	150	21	4	13	52-72			
	2525RR22-52H	△	25×25	25	150	26	4	22	52-72			
	2525RR13-64H	△	25×25	25	150	21	4	13	64-100			
	2525RR22-64H	△	25×25	25	150	26	4	22	64-100			
	2525RR13-90H	△	25×25	25	150	21	4	13	90-140			
	2525RR22-90H	△	25×25	25	150	26	4	22	90-140			
	2525RR13-130H	△	25×25	25	150	21	4	13	130-230			
	2525RR22-130H	△	25×25	25	150	26	4	22	130-230			

▲Stock available △Make-to-order

End surface grooving and turning tools



RR-type shown



Diameter range of entering



Type	Stock	Basic dimensions(mm)								Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFHD	2525RR13-58H	△	25×25	25	150	26	5	13	58-96	ZT(R)HD05□□-□□	GB70-85-M6×20	WH50L
	2525RR22-58H	△	25×25	25	150	26	5	22	58-96			
	2525RR13-86H	△	25×25	25	150	26	5	13	86-140			
	2525RR22-86H	△	25×25	25	150	26	5	22	86-140			
	2525RR13-130H	△	25×25	25	150	26	5	13	130-200			
	2525RR22-130H	△	25×25	25	150	26	5	22	130-200			
	2525RR13-185H	△	25×25	25	150	26	5	13	185-400			
	2525RR22-185H	△	25×25	25	150	26	5	22	185-400			
QFHS	2525RR30-185H	△	25×25	25	150	26	5	30	185-400	ZTHS0504-MG		
QFKD	2525RR13-60H	△	25×25	25	150	26	6	13	60-100	ZT(R)KD06□□-□□	GB70-85-M6×20	WH50L
	2525RR22-60H	△	25×25	25	150	26	6	22	60-100			
	2525RR13-88H	△	25×25	25	150	26	6	13	88-180			
	2525RR22-88H	△	25×25	25	150	26	6	22	88-180			
	2525RR13-160H	△	25×25	25	150	26	6	13	160-400			
	2525RR22-160H	△	25×25	25	150	26	6	22	160-400			
QFKS	2525RR30-160H	△	25×25	25	150	26	6	30	160-400	ZTKS0608-MG		

▲Stock available △Make-to-order

General turning

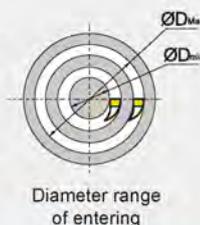
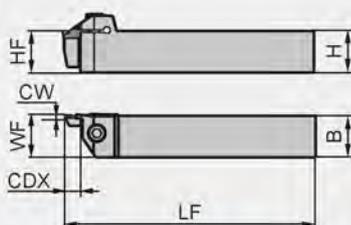
Parting and grooving

Little squirrel series parting and grooving tools

End surface grooving and turning tools



LL-type shown



Diameter range of entering



General turning

Parting and grooving

Little squirrel series parting and grooving tools

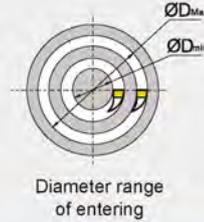
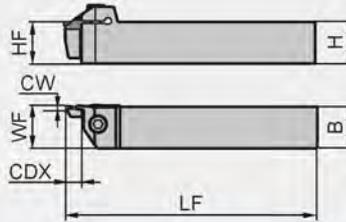
Type	Stock	Basic dimensions(mm)								Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFFD	2020LL7-48H	△	20×20	20	150	21	3	7	48-66	ZT(R)FD03□□-□□	GB70-85-M6×20	WH50L
	2020LL10-48H	△	20×20	20	150	21	3	10	48-66			
	2020LL7-60H	△	20×20	20	150	21	3	7	60-80			
	2020LL10-60H	△	20×20	20	150	21	3	10	60-80			
	2020LL7-74H	△	20×20	20	150	21	3	7	74-110			
	2020LL10-74H	△	20×20	20	150	21	3	10	74-110			
	2020LL7-100H	△	20×20	20	150	21	3	7	100-150			
	2020LL10-100H	△	20×20	20	150	21	3	10	100-150			
	2525LL10-48H	△	25×25	25	150	26	3	10	48-66			
	2525LL17-48H	△	25×25	25	150	26	3	17	48-66			
	2525LL10-60H	△	25×25	25	150	26	3	10	60-80			
	2525LL17-60H	△	25×25	25	150	26	3	17	60-80			
	2525LL10-74H	△	25×25	25	150	26	3	10	74-110			
	2525LL17-74H	△	25×25	25	150	26	3	17	74-110			
	2525LL10-100H	△	25×25	25	150	26	3	10	100-150			
2525LL17-100H	△	25×25	25	150	26	3	17	100-150				
QFGD	2020LL10-52H	△	20×20	20	150	21	4	10	52-72	ZT(R)GD04□□-□□	GB70-85-M6×20	WH50L
	2020LL15-52H	△	20×20	20	150	26	4	15	52-72			
	2020LL10-64H	△	20×20	20	150	21	4	10	64-100			
	2020LL15-64H	△	20×20	20	150	26	4	15	64-100			
	2020LL10-90H	△	20×20	20	150	21	4	10	90-140			
	2020LL15-90H	△	20×20	20	150	26	4	15	90-140			
	2020LL10-130H	△	20×20	20	150	21	4	10	130-230			
	2020LL15-130H	△	20×20	20	150	26	4	15	130-230			
	2525LL13-52H	△	25×25	25	150	21	4	13	52-72			
	2525LL22-52H	△	25×25	25	150	26	4	22	52-72			
	2525LL13-64H	△	25×25	25	150	21	4	13	64-100			
	2525LL22-64H	△	25×25	25	150	26	4	22	64-100			
	2525LL13-90H	△	25×25	25	150	21	4	13	90-140			
	2525LL22-90H	△	25×25	25	150	26	4	22	90-140			
	2525LL13-130H	△	25×25	25	150	21	4	13	130-230			
2525LL22-130H	△	25×25	25	150	26	4	22	130-230				

▲Stock available △Make-to-order

End surface grooving and turning tools



LL-type shown



Diameter range of entering



Type	Stock	Basic dimensions(mm)								Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFHD	2525LL13-58H	△	25×25	25	150	26	5	13	58-96	ZT(R)HD05□□-□□	GB70-85-M6×20	WH50L
	2525LL22-58H	△	25×25	25	150	26	5	22	58-96			
	2525LL13-86H	△	25×25	25	150	26	5	13	86-140			
	2525LL22-86H	△	25×25	25	150	26	5	22	86-140			
	2525LL13-130H	△	25×25	25	150	26	5	13	130-200			
	2525LL22-130H	△	25×25	25	150	26	5	22	130-200			
	2525LL13-185H	△	25×25	25	150	26	5	13	185-400			
	2525LL22-185H	△	25×25	25	150	26	5	22	185-400			
QFHS	2525LL30-185H	△	25×25	25	150	26	5	30	185-400	ZTHS0504-MG		
QFKD	2525LL13-60H	△	25×25	25	150	26	6	13	60-100	ZT(R)KD06□□-□□	GB70-85-M6×20	WH50L
	2525LL22-60H	△	25×25	25	150	26	6	22	60-100			
	2525LL13-88H	△	25×25	25	150	26	6	13	88-180			
	2525LL22-88H	△	25×25	25	150	26	6	22	88-180			
	2525LL13-160H	△	25×25	25	150	26	6	13	160-400			
	2525LL22-160H	△	25×25	25	150	26	6	22	160-400			
QFKS	2525LL30-160H	△	25×25	25	150	26	6	30	160-400	ZTKS0608-MG		

▲Stock available

△Make-to-order

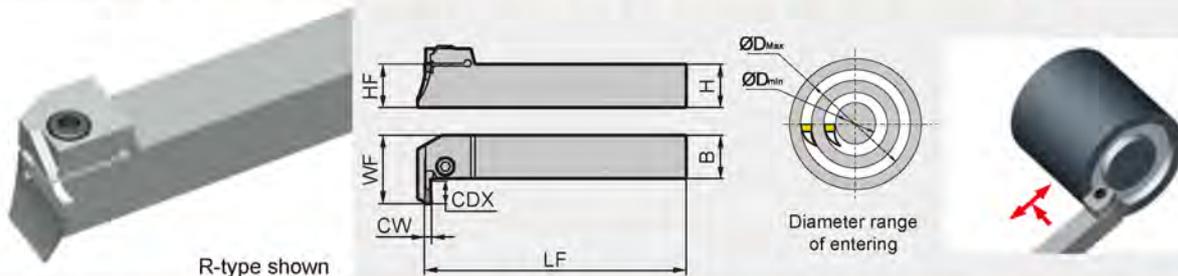
General turning

Parting and grooving

Little squirrel series parting and grooving tools



L type tools for surface grooving and turning



R-type shown

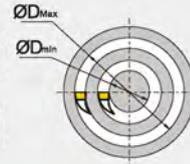
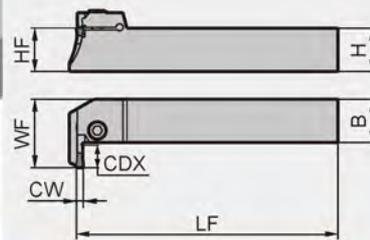
Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFFD	2020R/L7-48L	△	△	20×20	20	150	28.5	3	7	48-66	ZT(R)FD03□-□	GB70-85-M6×20	WH50L
	2020R/L10-48L	△	△	20×20	20	150	31.5	3	10	48-66			
	2020R/L7-60L	△	△	20×20	20	150	28.5	3	7	60-80			
	2020R/L10-60L	△	△	20×20	20	150	31.5	3	10	60-80			
	2020R/L7-74L	△	△	20×20	20	150	28.5	3	7	74-110			
	2020R/L10-74L	△	△	20×20	20	150	31.5	3	10	74-110			
	2020R/L7-100L	△	△	20×20	20	150	28.5	3	7	100-150			
	2020R/L10-100L	△	△	20×20	20	150	31.5	3	10	100-150			
	2525R/L10-48L	▲	▲	25×25	25	150	36.5	3	10	48-66			
	2525R/L17-48L	△	△	25×25	25	150	43.5	3	17	48-66			
	2525R/L10-60L	▲	▲	25×25	25	150	36.5	3	10	60-80			
	2525R/L17-60L	△	△	25×25	25	150	43.5	3	17	60-80			
	2525R/L10-74L	▲	▲	25×25	25	150	36.5	3	10	74-110			
	2525R/L17-74L	△	△	25×25	25	150	43.5	3	17	74-110			
	2525R/L10-100L	▲	▲	25×25	25	150	36.5	3	10	100-150			
2525R/L17-100L	△	△	25×25	25	150	43.5	3	17	100-150				
QFGD	2020R/L10-52L	△	△	20×20	20	150	31.5	4	10	52-72	ZT(R)GD04□-□	GB70-85-M6×20	WH50L
	2020R/L15-52L	△	△	20×20	20	150	36.5	4	15	52-72			
	2020R/L10-64L	△	△	20×20	20	150	31.5	4	10	64-100			
	2020R/L15-64L	△	△	20×20	20	150	36.5	4	15	64-100			
	2020R/L10-90L	△	△	20×20	20	150	31.5	4	10	90-140			
	2020R/L15-90L	△	△	20×20	20	150	36.5	4	15	90-140			
	2020R/L10-130L	△	△	20×20	20	150	31.5	4	10	130-230			
	2020R/L15-130L	△	△	20×20	20	150	36.5	4	15	130-230			
	2525R/L13-52L	▲	△	25×25	25	150	39.5	4	13	52-72			
	2525R/L22-52L	△	△	25×25	25	150	48.5	4	22	52-72			
	2525R/L13-64L	△	△	25×25	25	150	39.5	4	13	64-100			
	2525R/L22-64L	△	△	25×25	25	150	48.5	4	22	64-100			
	2525R/L13-90L	△	△	25×25	25	150	39.5	4	13	90-140			
	2525R/L22-90L	▲	△	25×25	25	150	48.5	4	22	90-140			
	2525R/L13-130L	△	△	25×25	25	150	39.5	4	13	130-230			
2525R/L22-130L	▲	▲	25×25	25	150	48.5	4	22	130-230				

▲Stock available △Make-to-order

L type tools for surface grooving and turning



R-type shown



Diameter range of entering



Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)				
QFHD	2525R/L13-58L	△	△	25×25	25	150	39.5	5	13	58-96	ZT(R)HD05□□-□□	GB70-85-M6×20	WH50L
	2525R/L22-58L	△	△	25×25	25	150	48.5	5	22	58-96			
	2525R/L13-86L	△	△	25×25	25	150	39.5	5	13	86-140			
	2525R/L22-86L	△	△	25×25	25	150	48.5	5	22	86-140			
	2525R/L13-130L	△	△	25×25	25	150	39.5	5	13	130-200			
	2525R/L22-130L	△	△	25×25	25	150	48.5	5	22	130-200			
	2525R/L13-185L	△	△	25×25	25	150	39.5	5	13	185-400			
	2525R/L22-185L	▲	△	25×25	25	150	48.5	5	22	185-400			
QFHS	2525R/L30-185L	△	△	25×25	25	150	56.5	5	30	185-400	ZTHS0504-MG		
QFKD	2525R/L13-60L	▲	▲	25×25	25	150	39.5	6	13	60-100	ZT(R)KD06□□-□□	GB70-85-M6×20	WH50L
	2525R/L22-60L	▲	▲	25×25	25	150	48.5	6	22	60-100			
	2525R/L13-88L	△	▲	25×25	25	150	39.5	6	13	88-180			
	2525R/L22-88L	▲	▲	25×25	25	150	48.5	6	22	88-180			

▲Stock available △Make-to-order

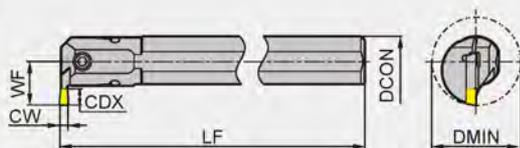
General turning

Parting and grooving

Little squirrel series parting and grooving tools



Internal grooving and turning tools



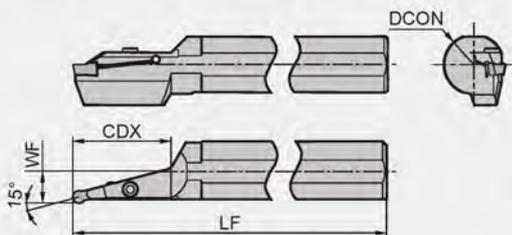
R-type shown

Type	Stock		Basic dimensions(mm)						Applicable inserts	Screw	Wrench
	R	L	DCON	LF	WF	CW	CDX _{max}	DMIN			
C20Q-QEDR/L05-27	▲	▲	20	180	15.2	2.5	5	27	ZTED025□□ ZRED025□□	GB70-85-M4×12	WH30L
C25R-QEDR/L07-33	▲	▲	25	200	20.3	2.5	7	33		GB70-85-M5×16	WH40L
C32S-QEDR/L09-42	▲	▲	32	250	25.3	2.5	9	42		GB70-85-M5×20	
C20Q-QFDR/L05-27	▲	▲	20	180	15.2	3	5	27	ZTFD03□□ ZRFD03□□	GB70-85-M4×12	WH30L
C25R-QFDR/L07-33	▲	▲	25	200	20.3	3	7	33		GB70-85-M5×16	WH40L
C32S-QFDR/L09-42	▲	▲	32	250	25.3	3	9	42		GB70-85-M5×20	
C25R-QGDR/L08-35	▲	▲	25	200	21.5	4	8	35	ZTGD04□□ ZRGD04□□	GB70-85-M5×16	WH40L
C32S-QGDR/L11-44	▲	▲	32	250	27.5	4	11	44		GB70-85-M6×20	WH50L
C40T-QGDR/L13-54	▲	▲	40	300	33.5	4	13	54		GB70-85-M6×20	
C25R-QHDR/L08-35	▲	▲	25	200	21.5	5	8	35	ZTHD05□□ ZRHD05□□	GB70-85-M5×16	WH40L
C32S-QHDR/L11-44	▲	▲	32	250	27.5	5	11	44		GB70-85-M6×20	WH50L
C40T-QHDR/L13-54	▲	▲	40	300	33.5	5	13	54		GB70-85-M6×20	
C25R-QKDR/L08-35	▲	▲	25	200	21.5	6	8	35	ZTKD06□□ ZRKD06□□	GB70-85-M5×16	WH40L
C32S-QKDR/L11-44	▲	▲	32	250	27.5	6	11	44		GB70-85-M6×20	WH50L
C40T-QKDR/L13-54	▲	▲	40	300	33.5	6	13	54		GB70-85-M6×20	

▲ Stock available

△ Make-to-order

Profile turning tools for Al



R-type shown

Type	Stock		Basic dimensions(mm)					Applicable inserts	Screw	Wrench
	R	L	DMIN (Minimum machining diameter)	DCON	WF	LF	CDX			
C40X-QLDR/L65-15A	▲	▲	160	40	21	320	65	ZRLD08-LH	GB70-85-M6×20	WH50L
C40X-QLDR/L80-15A	▲	△	160	40	21	320	80	ZRLD08-LH		
C40X-QKDR/L60-15A	△	△	160	40	20	320	60	ZRKD06-LH		
C40X-QKDR/L75-15A	△	△	160	40	20	320	75	ZRKD06-LH		

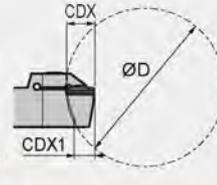
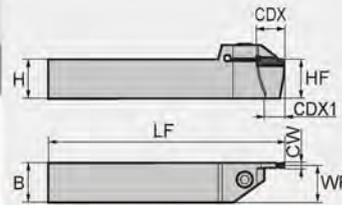
▲ Stock available

△ Make-to-order

External parting, grooving and turning tools



L-type shown



Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	LF	WF	CW	CDX	ØD	CDX			
GED1616R/L08-2.5	▲	▲	16×16	125	16.3	2.5	8	∞	8	G□MD25□□-□□	GB70-85-M5×16	WH40L
GED1616R/L14-2.5	▲	▲	16×16	125	16.3	2.5	14	60	11			
GED2020R/L08-2.5	▲	▲	20×20	125	20.3	2.5	8	∞	8			
GED2020R/L14-2.5	▲	▲	20×20	125	20.3	2.5	14	100	11			
GED2525R/L08-2.5	▲	▲	25×25	150	25.3	2.5	8	∞	8			
GED2525R/L14-2.5	▲	▲	25×25	150	25.3	2.5	14	100	11			
GED1616R/L08-3	▲	▲	16×16	125	16.45	3	8	∞	8	G□MD3□□-□□	GB70-85-M5×16	WH40L
GED1616R/L14-3	▲	▲	16×16	125	16.45	3	14	60	11			
GED2020R/L08-3	▲	▲	20×20	125	20.45	3	8	∞	8			
GED2020R/L14-3	▲	▲	20×20	125	20.45	3	14	100	11			
GED2525R/L08-3	▲	▲	25×25	150	25.45	3	8	∞	8			
GED2525R/L14-3	▲	▲	25×25	150	25.45	3	14	100	11			
GED2020R/L10-4	▲	▲	20×20	125	20.5	4	10	∞	10	G□MD4□□-□□	GB70-85-M6×20	WH50L
GED2020R/L17-4	▲	▲	20×20	125	20.5	4	17	100	14			
GED2525R/L10-4	▲	▲	25×25	150	25.5	4	10	∞	10			
GED2525R/L17-4	▲	▲	25×25	150	25.5	4	17	100	14			
GED3232R/L10-4	▲	▲	32×32	170	32.5	4	10	∞	10			
GED3232R/L17-4	▲	▲	32×32	170	32.5	4	17	∞	17			
GED2525R/L10-5	▲	▲	25×25	150	25.5	5	10	∞	10	G□MD5□□-□□	GB70-85-M6×20	WH50L
GED2525R/L17-5	▲	▲	25×25	150	25.5	5	17	100	14			
GED3232R/L10-5	▲	▲	32×32	170	32.5	5	10	∞	10			
GED3232R/L17-5	▲	▲	32×32	170	32.5	5	17	∞	17			
GED2525R/L10-6	▲	▲	25×25	150	25.5	6	10	∞	10	G□MD6□□-□□	GB70-85-M6×20	WH50L
GED2525R/L17-6	▲	▲	25×25	150	25.5	6	17	100	14			
GED3232R/L10-6	▲	▲	32×32	170	32.5	6	10	∞	10			
GED3232R/L17-6	▲	▲	32×32	170	32.5	6	17	∞	17			

▲Stock available

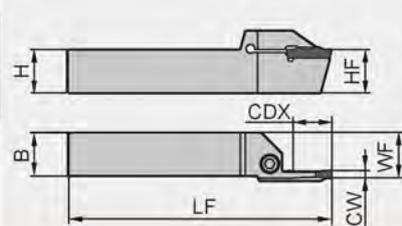
△Make-to-order



End surface grooving and turning tools



L-type shown



Diameter range of entering



G-series turning

Parting and grooving

G-series parting and grooving tools

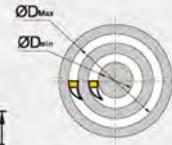
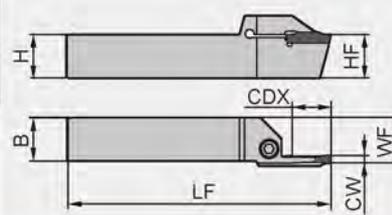
Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020R/L08-28H-3	△	△	20×20	20	150	21	3	8	28-35	G□MD3□□-□□	GB70-85-M6×20	WH50L
GFD2020R/L08-34H-3	△	△	20×20	20	150	21	3	8	34-45			
GFD2020R/L08-44H-3	△	△	20×20	20	150	21	3	8	44-60			
GFD2020R/L14-58H-3	△	△	20×20	20	150	21	3	14	58-80			
GFD2020R/L14-78H-3	△	△	20×20	20	150	21	3	14	78-130			
GFD2020R/L14-126H-3	△	△	20×20	20	150	21	3	14	126-230			
GFD2525R/L08-28H-3	▲	▲	25×25	25	150	26	3	8	28-35			
GFD2525R/L08-34H-3	▲	▲	25×25	25	150	26	3	8	34-45			
GFD2525R/L08-44H-3	▲	▲	25×25	25	150	26	3	8	44-60			
GFD2525R/L14-58H-3	▲	▲	25×25	25	150	26	3	14	58-80			
GFD2525R/L14-78H-3	▲	▲	25×25	25	150	26	3	14	78-130			
GFD2525R/L14-126H-3	▲	▲	25×25	25	150	26	3	14	126-230			
GFD2020R/L10-28H-4	△	△	20×20	20	150	21	4	10	28-35	G□MD4□□-□□		
GFD2020R/L10-34H-4	△	△	20×20	20	150	21	4	10	34-45			
GFD2020R/L10-44H-4	△	△	20×20	20	150	21	4	10	44-60			
GFD2020R/L17-58H-4	△	△	20×20	20	150	21	4	17	58-80			
GFD2020R/L17-78H-4	△	△	20×20	20	150	21	4	17	78-130			
GFD2020R/L17-126H-4	△	△	20×20	20	150	21	4	17	126-230			
GFD2525R/L10-28H-4	▲	▲	25×25	25	150	26	4	10	28-35			
GFD2525R/L10-34H-4	▲	▲	25×25	25	150	26	4	10	34-45			
GFD2525R/L10-44H-4	▲	▲	25×25	25	150	26	4	10	44-60			
GFD2525R/L17-58H-4	▲	▲	25×25	25	150	26	4	17	58-80			
GFD2525R/L17-78H-4	▲	▲	25×25	25	150	26	4	17	78-130			
GFD2525R/L17-126H-4	▲	▲	25×25	25	150	26	4	17	126-230			
GFD2525R/L17-200H-4	▲	▲	25×25	25	150	26	4	17	200-480			

▲ Stock available △ Make-to-order

End surface grooving and turning tools



L-type shown



Diameter range of entering



Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020R/L10-35H-5	△	△	20×20	20	150	21	5	10	35-45	G□MD5□□-□□	GB70-85-M6×20	WH50L
GFD2020R/L10-44H-5	△	△	20×20	20	150	21	5	10	44-58			
GFD2020R/L17-56H-5	△	△	20×20	20	150	21	5	17	56-86			
GFD2020R/L17-84H-5	△	△	20×20	20	150	21	5	17	84-158			
GFD2020R/L17-156H-5	△	△	20×20	20	150	21	5	17	156-500			
GFD2525R/L10-35H-5	▲	▲	25×25	25	150	26	5	10	35-45			
GFD2525R/L10-44H-5	▲	▲	25×25	25	150	26	5	10	44-58			
GFD2525R/L17-56H-5	▲	▲	25×25	25	150	26	5	17	56-86			
GFD2525R/L17-84H-5	▲	▲	25×25	25	150	26	5	17	84-158			
GFD2525R/L17-156H-5	▲	▲	25×25	25	150	26	5	17	156-500			
GFD2020R/L10-35H-6	△	△	20×20	20	150	21	6	10	35-50	G□MD6□□-□□		
GFD2020R/L17-48H-6	△	△	20×20	20	150	21	6	17	48-80			
GFD2020R/L17-78H-6	△	△	20×20	20	150	21	6	17	78-168			
GFD2020R/L17-160H-6	△	△	20×20	20	150	21	6	17	160-660			
GFD2525R/L10-35H-6	▲	▲	25×25	25	150	26	6	10	35-50			
GFD2525R/L17-48H-6	▲	▲	25×25	25	150	26	6	17	48-80			
GFD2525R/L17-78H-6	▲	▲	25×25	25	150	26	6	17	78-168			
GFD2525R/L17-160H-6	▲	▲	25×25	25	150	26	6	17	160-660			

▲Stock available

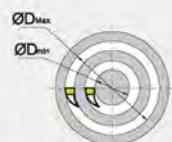
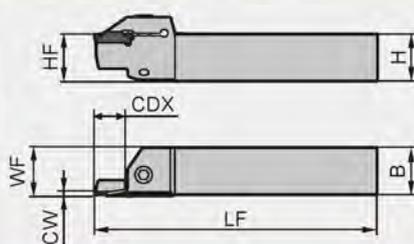
△Make-to-order



End surface grooving and turning tools



RR-type shown



Diameter range of entering



Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020RR08-28H-3	△	20×20	20	150	21	3	8	28-35	G□MD3□□-□□	GB70-85-M6x20	WH50L
GFD2020RR08-34H-3	△	20×20	20	150	21	3	8	34-45			
GFD2020RR08-44H-3	△	20×20	20	150	21	3	8	44-60			
GFD2020RR14-58H-3	△	20×20	20	150	21	3	14	58-80			
GFD2020RR14-78H-3	△	20×20	20	150	21	3	14	78-130			
GFD2020RR14-126H-3	△	20×20	20	150	21	3	14	126-230			
GFD2525RR08-28H-3	△	25×25	25	150	26	3	8	28-35			
GFD2525RR08-34H-3	△	25×25	25	150	26	3	8	34-45			
GFD2525RR08-44H-3	△	25×25	25	150	26	3	8	44-60			
GFD2525RR14-58H-3	△	25×25	25	150	26	3	14	58-80			
GFD2525RR14-78H-3	△	25×25	25	150	26	3	14	78-130			
GFD2525RR14-126H-3	△	25×25	25	150	26	3	14	126-230			
GFD2020RR10-28H-4	△	20×20	20	150	21	4	10	28-35	G□MD4□□-□□		
GFD2020RR10-34H-4	△	20×20	20	150	21	4	10	34-45			
GFD2020RR10-44H-4	△	20×20	20	150	21	4	10	44-60			
GFD2020RR17-58H-4	△	20×20	20	150	21	4	17	58-80			
GFD2020RR17-78H-4	△	20×20	20	150	21	4	17	78-130			
GFD2020RR17-126H-4	△	20×20	20	150	21	4	17	126-230			
GFD2525RR10-28H-4	△	25×25	25	150	26	4	10	28-35			
GFD2525RR10-34H-4	△	25×25	25	150	26	4	10	34-45			
GFD2525RR10-44H-4	△	25×25	25	150	26	4	10	44-60			
GFD2525RR17-58H-4	△	25×25	25	150	26	4	17	58-80			
GFD2525RR17-78H-4	△	25×25	25	150	26	4	17	78-130			
GFD2525RR17-126H-4	△	25×25	25	150	26	4	17	126-230			
GFD2525RR17-200H-4	△	25×25	25	150	26	4	17	200-480			

▲ Stock available △ Make-to-order

General turning

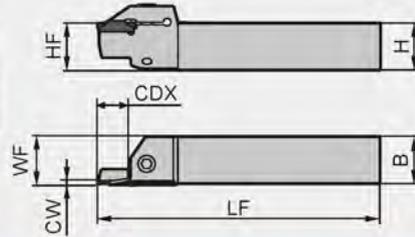
Parting and grooving

G-series parting and grooving tools

End surface grooving and turning tools



RR-type shown



Diameter range of entering



Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020RR10-35H-5	△	20×20	20	150	21	5	10	35-45	G□MD5□□-□□	GB70-85-M6x20	WH50L
GFD2020RR10-44H-5	△	20×20	20	150	21	5	10	44-58			
GFD2020RR17-56H-5	△	20×20	20	150	21	5	17	56-86			
GFD2020RR17-84H-5	△	20×20	20	150	21	5	17	84-158			
GFD2020RR17-156H-5	△	20×20	20	150	21	5	17	156-500			
GFD2525RR10-35H-5	△	25×25	25	150	26	5	10	35-45			
GFD2525RR10-44H-5	△	25×25	25	150	26	5	10	44-58			
GFD2525RR17-56H-5	△	25×25	25	150	26	5	17	56-86			
GFD2525RR17-84H-5	△	25×25	25	150	26	5	17	84-158			
GFD2525RR17-156H-5	△	25×25	25	150	26	5	17	156-500			
GFD2020RR10-35H-6	△	20×20	20	150	21	6	10	35-50	G□MD6□□-□□	GB70-85-M6x20	WH50L
GFD2020RR17-48H-6	△	20×20	20	150	21	6	17	48-80			
GFD2020RR17-78H-6	△	20×20	20	150	21	6	17	78-168			
GFD2020RR17-160H-6	△	20×20	20	150	21	6	17	160-660			
GFD2525RR10-35H-6	△	25×25	25	150	26	6	10	35-50			
GFD2525RR17-48H-6	△	25×25	25	150	26	6	17	48-80			
GFD2525RR17-78H-6	△	25×25	25	150	26	6	17	78-168			
GFD2525RR17-160H-6	△	25×25	25	150	26	6	17	160-660			

▲Stock available

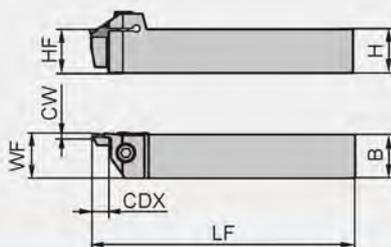
△Make-to-order



End surface grooving and turning tools



LL-type shown



Diameter range of entering



G-series turning

Parting and grooving

G-series parting and grooving tools

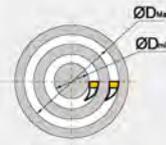
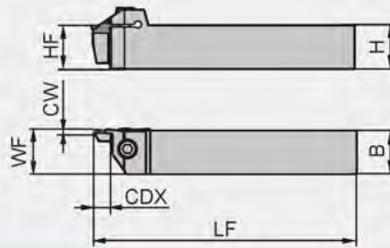
Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020LL08-28H-3	△	20×20	20	150	21	3	8	28-35	G□MD3□□-□□	GB70-85-M6x20	WH50L
GFD2020LL08-34H-3	△	20×20	20	150	21	3	8	34-45			
GFD2020LL08-44H-3	△	20×20	20	150	21	3	8	44-60			
GFD2020LL14-58H-3	△	20×20	20	150	21	3	14	58-80			
GFD2020LL14-78H-3	△	20×20	20	150	21	3	14	78-130			
GFD2020LL14-126H-3	△	20×20	20	150	21	3	14	126-230			
GFD2525LL08-28H-3	△	25×25	25	150	26	3	8	28-35			
GFD2525LL08-34H-3	△	25×25	25	150	26	3	8	34-45			
GFD2525LL08-44H-3	△	25×25	25	150	26	3	8	44-60			
GFD2525LL14-58H-3	△	25×25	25	150	26	3	14	58-80			
GFD2525LL14-78H-3	△	25×25	25	150	26	3	14	78-130			
GFD2525LL14-126H-3	△	25×25	25	150	26	3	14	126-230			
GFD2020LL10-28H-4	△	20×20	20	150	21	4	10	28-35	G□MD4□□-□□		
GFD2020LL10-34H-4	△	20×20	20	150	21	4	10	34-45			
GFD2020LL10-44H-4	△	20×20	20	150	21	4	10	44-60			
GFD2020LL17-58H-4	△	20×20	20	150	21	4	17	58-80			
GFD2020LL17-78H-4	△	20×20	20	150	21	4	17	78-130			
GFD2020LL17-126H-4	△	20×20	20	150	21	4	17	126-230			
GFD2525LL10-28H-4	△	25×25	25	150	26	4	10	28-35			
GFD2525LL10-34H-4	△	25×25	25	150	26	4	10	34-45			
GFD2525LL10-44H-4	△	25×25	25	150	26	4	10	44-60			
GFD2525LL17-58H-4	△	25×25	25	150	26	4	17	58-80			
GFD2525LL17-78H-4	△	25×25	25	150	26	4	17	78-130			
GFD2525LL17-126H-4	△	25×25	25	150	26	4	17	126-230			
GFD2525LL17-200H-4	△	25×25	25	150	26	4	17	200-480			

▲Stock available △Make-to-order

End surface grooving and turning tools



LL-type shown



Diameter range of entering



Type	Stock	Basic dimensions(mm)							Applicable inserts	Screw	Wrench
		H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020LL10-35H-5	△	20×20	20	150	21	5	10	35-45	G□MD5□□-□□	GB70-85-M6x20	WH50L
GFD2020LL10-44H-5	△	20×20	20	150	21	5	10	44-58			
GFD2020LL17-56H-5	△	20×20	20	150	21	5	17	56-86			
GFD2020LL17-84H-5	△	20×20	20	150	21	5	17	84-158			
GFD2020LL17-156H-5	△	20×20	20	150	21	5	17	156-500			
GFD2525LL10-35H-5	△	25×25	25	150	26	5	10	35-45			
GFD2525LL10-44H-5	△	25×25	25	150	26	5	10	44-58			
GFD2525LL17-56H-5	△	25×25	25	150	26	5	17	56-86			
GFD2525LL17-84H-5	△	25×25	25	150	26	5	17	84-158			
GFD2525LL17-156H-5	△	25×25	25	150	26	5	17	156-500			
GFD2020LL10-35H-6	△	20×20	20	150	21	6	10	35-50	G□MD6□□-□□		
GFD2020LL17-48H-6	△	20×20	20	150	21	6	17	48-80			
GFD2020LL17-78H-6	△	20×20	20	150	21	6	17	78-168			
GFD2020LL17-160H-6	△	20×20	20	150	21	6	17	160-660			
GFD2525LL10-35H-6	△	25×25	25	150	26	6	10	35-50			
GFD2525LL17-48H-6	△	25×25	25	150	26	6	17	48-80			
GFD2525LL17-78H-6	△	25×25	25	150	26	6	17	78-168			
GFD2525LL17-160H-6	△	25×25	25	150	26	6	17	160-660			

▲Stock available

△Make-to-order

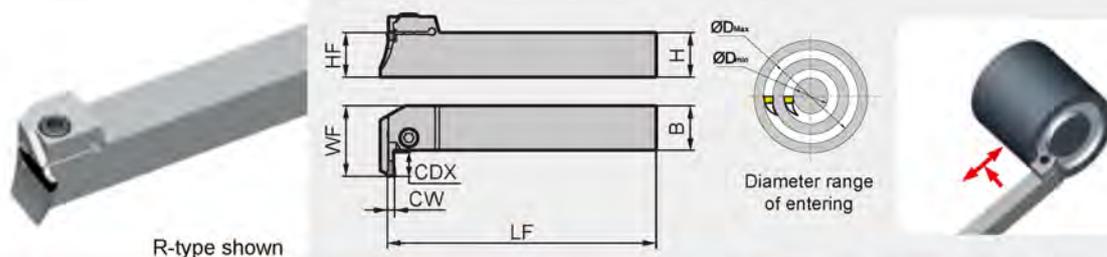
General turning

Parting and grooving

G-series parting and grooving tools



L type tools for surface grooving and turning



R-type shown

Diameter range of entering

G-series parting and grooving tools

G-series turning

Parting and grooving

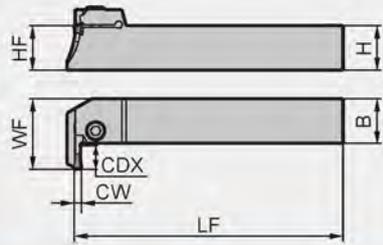
Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	ØD (min-max)			
GFD2020R/L08-28L-3	△	△	20×20	20	150	29	3	8	28-35	G□MD3□□-□□	GB70-85-M6×20	WH50L
GFD2020R/L08-34L-3	△	△	20×20	20	150	29	3	8	34-45			
GFD2020R/L08-44L-3	△	△	20×20	20	150	29	3	8	44-60			
GFD2020R/L14-58L-3	△	△	20×20	20	150	35	3	14	58-80			
GFD2020R/L14-78L-3	△	△	20×20	20	150	35	3	14	78-130			
GFD2020R/L14-126L-3	△	△	20×20	20	150	35	3	14	126-230			
GFD2525R/L08-28L-3	△	△	25×25	25	150	34	3	8	28-35			
GFD2525R/L08-34L-3	△	△	25×25	25	150	34	3	8	34-45			
GFD2525R/L08-44L-3	△	△	25×25	25	150	34	3	8	44-60			
GFD2525R/L14-58L-3	△	△	25×25	25	150	40	3	14	58-80			
GFD2525R/L14-78L-3	△	△	25×25	25	150	40	3	14	78-130			
GFD2525R/L14-126L-3	△	△	25×25	25	150	40	3	14	126-230			
GFD2020R/L10-28L-4	△	△	20×20	20	150	31	4	10	28-35	G□MD4□□-□□	GB70-85-M6×20	WH50L
GFD2020R/L10-34L-4	△	△	20×20	20	150	31	4	10	34-45			
GFD2020R/L10-44L-4	△	△	20×20	20	150	31	4	10	44-60			
GFD2020R/L17-58L-4	△	△	20×20	20	150	38	4	17	58-80			
GFD2020R/L17-78L-4	△	△	20×20	20	150	38	4	17	78-130			
GFD2020R/L17-126L-4	△	△	20×20	20	150	38	4	17	126-230			
GFD2525R/L10-28L-4	△	△	25×25	25	150	36	4	10	28-35			
GFD2525R/L10-34L-4	△	△	25×25	25	150	36	4	10	34-45			
GFD2525R/L10-44L-4	△	△	25×25	25	150	36	4	10	44-60			
GFD2525R/L17-58L-4	△	△	25×25	25	150	43	4	17	58-80			
GFD2525R/L17-78L-4	△	△	25×25	25	150	43	4	17	78-130			
GFD2525R/L17-126L-4	△	△	25×25	25	150	43	4	17	126-230			
GFD2525R/L17-200L-4	△	△	25×25	25	150	43	4	17	200-480			

▲ Stock available △ Make-to-order

L type tools for surface grooving and turning



R-type shown



Diameter range of entering

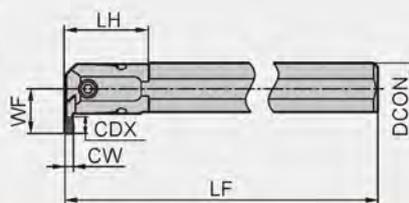


Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	H×B	HF	LF	WF	CW	CDX _{max}	∅D (min-max)			
GFD2020R/L10-35L-5	△	△	20×20	20	150	31	5	10	35-45	G□MD5□□-□□	GB70-85-M6×20	WH50L
GFD2020R/L10-44L-5	△	△	20×20	20	150	31	5	10	44-58			
GFD2020R/L17-56L-5	△	△	20×20	20	150	38	5	17	56-86			
GFD2020R/L17-84L-5	△	△	20×20	20	150	38	5	17	84-158			
GFD2020R/L17-156L-5	△	△	20×20	20	150	38	5	17	156-500			
GFD2525R/L10-35L-5	△	△	25×25	25	150	36	5	10	35-45			
GFD2525R/L10-44L-5	△	△	25×25	25	150	43	5	10	44-58			
GFD2525R/L17-56L-5	△	△	25×25	25	150	43	5	17	56-86			
GFD2525R/L17-84L-5	△	△	25×25	25	150	43	5	17	84-158			
GFD2525R/L17-156L-5	△	△	25×25	25	150	43	5	17	156-500			
GFD2020R/L10-35L-6	△	△	20×20	20	150	31	6	10	35-50	G□MD6□□-□□		
GFD2020R/L17-48L-6	△	△	20×20	20	150	38	6	17	48-80			
GFD2020R/L17-78L-6	△	△	20×20	20	150	38	6	17	78-168			
GFD2020R/L17-160L-6	△	△	20×20	20	150	38	6	17	160-660			
GFD2525R/L10-35L-6	△	△	25×25	25	150	36	6	10	35-50			
GFD2525R/L17-48L-6	△	△	25×25	25	150	43	6	17	48-80			
GFD2525R/L17-78L-6	△	△	25×25	25	150	43	6	17	78-168			
GFD2525R/L17-160L-6	△	△	25×25	25	150	43	6	17	160-660			

▲Stock available

△Make-to-order

Internal grooving and turning tools



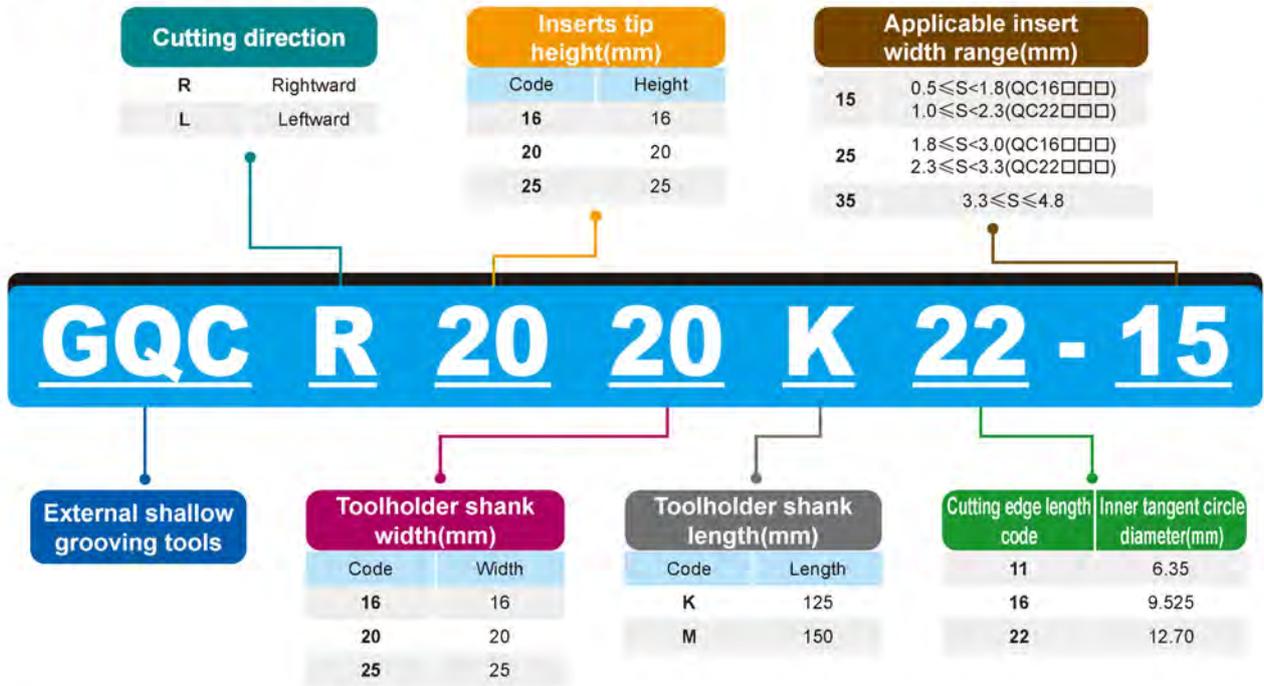
R-type shown

Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench
	R	L	CW	DMIN	DCON	LF	LH	WF	CDX			
GID2016R/L04-2.5	▲	▲	2.5	20	16	150	25	12	4	G□MD25□□-□□	I60M5×13	WT20IP
GID2520R/L05-2.5	▲	▲	2.5	25	20	180	30	15	5		GB70-85-M4×12	WH30L
GID3225R/L07-2.5	▲	▲	2.5	32	25	200	40	19.5	7		GB70-85-M5×12	WH40L
GID2016R/L05-3	▲	▲	3.0	20	16	150	25	12	5	G□MD3□□-□□	I60M5×13	WT20IP
GID2520R/L06-3	▲	▲	3.0	25	20	180	30	16	6		GB70-85-M4×12	WH30L
GID3225R/L08-3	▲	▲	3.0	32	25	200	40	20.5	8		GB70-85-M5×12	WH40L
GID2520R/L06-4	▲	▲	4.0	25	20	180	30	16	6	G□MD4□□-□□	GB70-85-M4×12	WH30L
GID3225R/L08-4	▲	▲	4.0	32	25	200	40	20.5	8		GB70-85-M5×12	WH40L
GID4032R/L11-4	▲	▲	4.0	40	32	250	50	27	11		GB70-85-M6×14	WH50L
GID3225R/L08-5	▲	▲	5.0	32	25	200	40	20.5	8	G□MD5□□-□□	GB70-85-M5×12	WH40L
GID4032R/L11-5	▲	▲	5.0	40	32	250	50	27	11		GB70-85-M6×14	WH50L
GID3225R/L08-6	▲	▲	6.0	32	25	200	40	20.5	8		G□MD6□□-□□	GB70-85-M5×12
GID4032R/L11-6	▲	▲	6.0	40	32	250	50	27	11	GB70-85-M6×14		WH50L

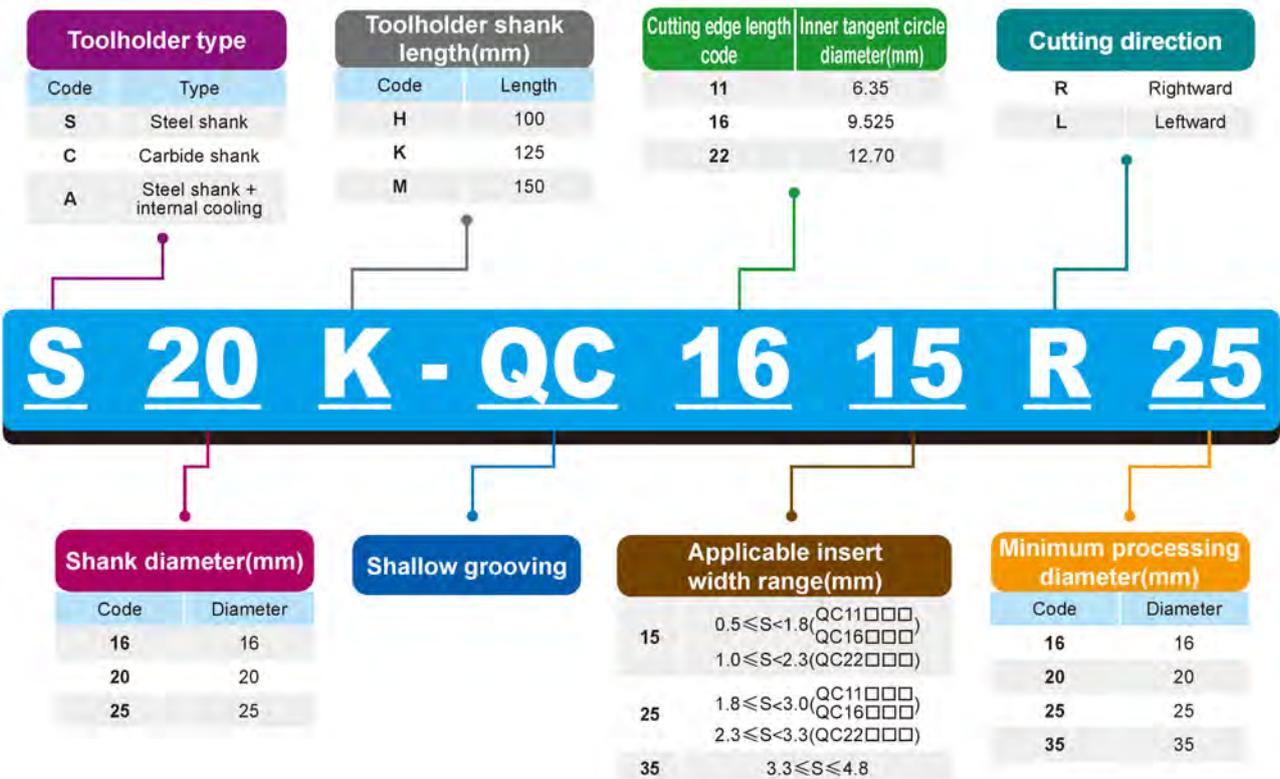
▲ Stock available △ Make-to-order

QC series shallow grooving tools code key

● External shallow grooving tools



● Internal shallow grooving tools



General summary

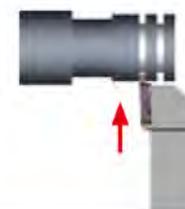
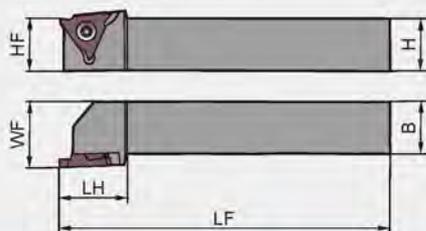
Parting and grooving

QC series shallow grooving tools



QC series shallow grooving tools

External shallow grooving tools

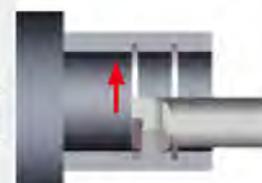
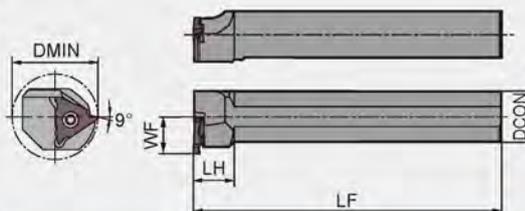


R-type shown. The right (R) holder is fitted with a right (R) insert, and the left (L) holder is fitted with a left (L) insert.

Type	Stock	Basic dimensions(mm)						Width (mm)	Applicable inserts	Screw	Wrench
		H	HF	B	WF	LH	LF				
GQCR/L	▲ 1616K16-15	▲	16	16	16	21	25.5	125	QC16R/L 110~180	I60M3.5×10	WT15IP
	▲ 2020K16-15	▲	20	20	20	25		125			
	▲ 2525M16-15	▲	25	25	25	30		150			
	▲ 1616K16-25	▲	16	16	16	21		125			
	▲ 2020K16-25	▲	20	20	20	25		125			
	▲ 2525M16-25	▲	25	25	25	30		150			
	▲ 2020K22-15	▲	20	20	20	25		125	QC22R/L 100~230	I60M5×13	WT20IP
	▲ 2525M22-15	▲	25	25	25	30		150			
	▲ 2020K22-25	▲	20	20	20	25		125			
	▲ 2525M22-25	▲	25	25	25	30		150	QC22R/L 230~330	I60M5×13	WT20IP
	▲ 2020K22-35	▲	20	20	20	25		125			
	▲ 2525M22-35	▲	25	25	25	30		150	QC22R/L 330~480		

▲ Stock available △ Make-to-order

Internal shallow grooving tools



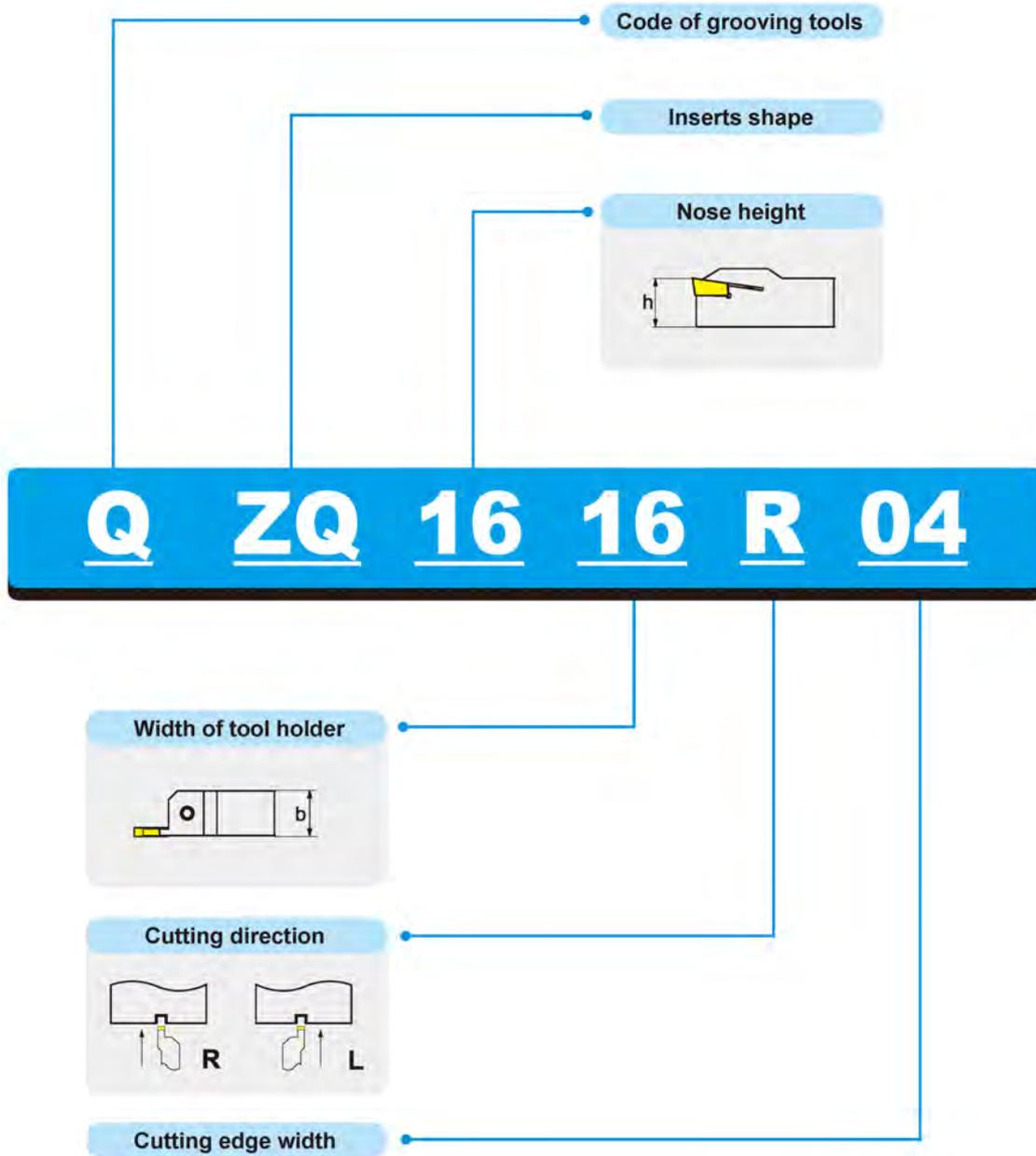
L-type shown. The right (R) holder is fitted with a right (R) insert, and the left (L) holder is fitted with a left (L) insert.

Type	Stock	Basic dimensions(mm)					Width (mm)	Applicable inserts	Screw	Wrench
		DMIN	DCON	WF	LH	LF				
S20K-QC1115R/L 16	▲	16	20	11.1	40	125	1.2-1.8	QC11R/L 120~180	I60M2.5×6.5	WT07IP
S20K-QC1125R/L 16	▲	16	20	11.1	40	125	1.8-3.0			
S16H-QC1115R/L 20	▲	21	16	11.5	12	100	1.2-1.8	QC11R/L 120~180	I60M3.5×10	WT15IP
S16H-QC1125R/L 20	▲	21	16	11.5	12	100	1.8-3.0			
S20M-QC1615R/L 25	▲	26	20	12.5	15	150	1.1-1.8	QC16R/L 110~180	I60M3.5×10	WT15IP
S20M-QC1625R/L 25	▲			12.5			1.8-3.0			
S25M-QC2215R/L 35	▲	35	25	18.2	20	150	1.0-2.3	QC22R/L 100~230	I60M5×13	WT20IP
S25M-QC2225R/L 35	▲			18.2			2.3-3.3			
S25M-QC2235R/L 35	▲			18.2			3.3-4.8			

▲ Stock available △ Make-to-order

Parting and grooving tools code key

● External grooving



General turning

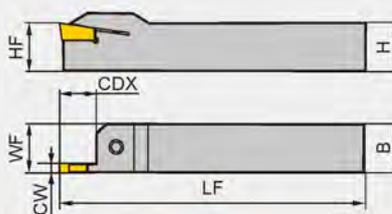
Parting and grooving

Supplementary series parting and grooving inserts

External parting and grooving tools: QZQ series



R-type shown



Type	Stock		Basic dimensions(mm)							Applicable inserts	Screw	Wrench	
	R	L	H	HF	B	LF	WF	CW	CDX _{max}				
QZQ	1616R/L03	▲	▲	16	16	16	100	16.4	3	16	ZQMX3N11-IE	GB70-85-M5×16	WH40L
	1616R/L04	▲	▲	16	16	16	100	16.4	4	18	ZQMX4N11-IE		
	2020R/L03	▲	▲	20	20	20	125	20.4	3	20	ZQMX3N11-IE		
	2020R/L04	▲	▲	20	20	20	125	20.4	4	20	ZQMX4N11-IE	GB70-85-M6×20	WH50L
	2525R/L03	▲	▲	25	25	25	150	25.4	3	20	ZQMX3N11-IE		
	2525R/L04	▲	▲	25	25	25	150	25.4	4	20	ZQMX4N11-IE		
	2525R/L05	▲	▲	25	25	25	150	25.4	5	25	ZQMX5N11-IE		
	2525R/L06	▲	▲	25	25	25	150	25.7	6	32	ZQMX6N11-IE		
	3225R/L03	▲	▲	32	32	25	170	25.4	3	25	ZQMX3N11-IE		
	3225R/L04	▲	▲	32	32	25	170	25.4	4	25	ZQMX4N11-IE		
	3225R/L05	▲	▲	32	32	25	170	25.4	5	25	ZQMX5N11-IE		
	3225R/L06	▲	▲	32	32	25	170	25.7	6	35	ZQMX6N11-IE		

▲ Stock available △ Make-to-order

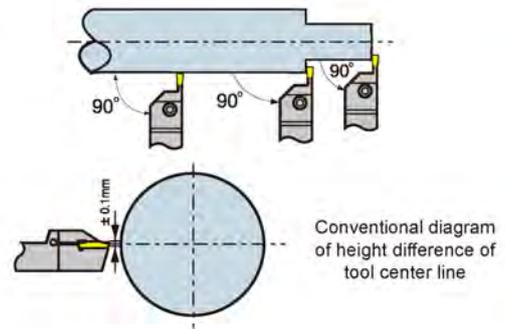
General turning

Parting and grooving

Supplementary series parting and grooving inserts

Center height control of parting and grooving tools

- No matter which parting or grooving tools you select, the ideal surface quality is only achieved by ensuring that insert is vertical from the center line of workpiece, which can also effectively reduce vibration during machining.
- The height tolerance between insert edge bottom and the center height of workpiece should be remained in $\pm 0.1\text{mm}$, especially for lever parting and grooving workpieces with small diameter. This can improve tool life, reduce cutting resistant force, and diminish burrs.

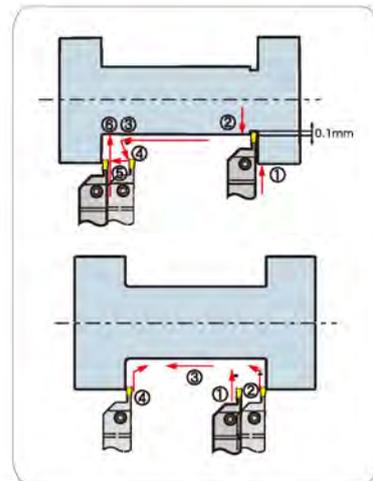


Parting

- When the insert is approaching the center of workpiece, the feed speed should be reduced by 30%, which is good for improving life and surface quality.
- As long as conditions allow, try to shorten the overhang of tools as much as possible to ensure good stability.

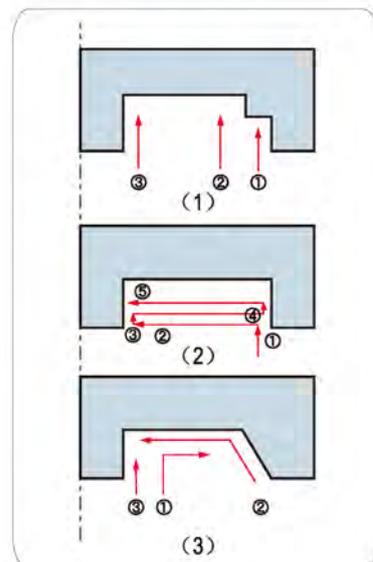
External grooving, turning and profiling

- In-feed sequence: When cutting depth $> 0.5\text{mm}$, radial in-feed (Max. cutting depth can be $0.75 \times \text{insert edge width } S$) \rightarrow radial out-feed about 0.1mm \rightarrow axial in-feed \rightarrow flank out-feed \rightarrow axial in-feed \rightarrow radial machining to required depth.
- When finishing, adopt the sequence shown in the diagram. It can reduce vibration caused by the friction between tools and chips.



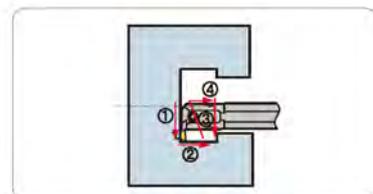
Surface grooving and turning

- Finishing (Multi-slot cutting)
Cut inwards from Max. diameter. Inserts offset to inward flange when retracting, as is shown in diagram (1).
- Recess turning
Axial turning depth should not exceed $0.75 \times S$ (cutting edge width).
If slot width is larger than slot depth, it is recommended to adopt recess turning, as is shown in diagram (2).
If slot depth is larger than slot depth, it is recommended to adopt multi-slot cutting.
- Finish machining
First finish bottom and external diameter fringe, then finish the internal diameter to required size, as is shown in diagram (3).



Internal grooving and turning

- To facilitate chip flow, always feed along the direction of moving from the deepest in the hole to outside.





Recommended cutting parameters for parting and grooving

Insert size	Recommended feed rate(mm/r)						
	Insert width(mm)	Parting	Grooving	Grooving(-MM)	Turning	Turning(-MM)	Profiling
2.5		0.05-0.15	0.05-0.15	0.05-0.2	0.05-0.15	0.05-0.2	0.05-0.15
3		0.05-0.15	0.05-0.15	0.05-0.2	0.07-0.15	0.07-0.2	0.1-0.2
4		0.05-0.2	0.05-0.2	0.05-0.25	0.07-0.25	0.07-0.3	0.1-0.2
5		0.07-0.2	0.07-0.22	0.07-0.25	0.1-0.25	0.1-0.3	0.15-0.3
6		0.1-0.3	0.07-0.25	0.07-0.3	0.1-0.3	0.1-0.35	0.15-0.3
8				0.1-0.4		0.15-0.45	

Workpiece material	Hardness	YBG302	YBG202 YBG205	YBG105	YBG212	YBC151	YBC251	YBS103	YD101	YD201	YBG102	YC10	YC40
P Carbon steel	125 ≤ HB ≤ 170	120-260	150-280			140-280	150-280					130-280	110-260
	Low alloy steel	180 ≤ HB ≤ 275	80-175	110-200		100-240	110-200					90-200	70-175
	High alloy steel	180 ≤ HB ≤ 325	80-160	110-190		100-220	110-190					90-190	70-160
	Cast steel	180 ≤ HB ≤ 250	75-140	100-170		80-160	100-170					80-170	60-140
M Ferrite, Martensite	200 ≤ HB ≤ 300	70-170	100-200				100-200					80-200	60-170
	Austenite	180 ≤ HB ≤ 300	80-200	110-220			110-220					90-220	70-200
K Malleable cast iron	130 ≤ HB ≤ 230	100-200	130-220							90-160			
	Grey cast iron	180 ≤ HB ≤ 220	90-170	120-200						80-140			
	Nodular cast iron	160 ≤ HB ≤ 250	80-150	110-180						60-140			
N Al alloy	--								200-400				
S Super alloy	≤ 400			40-70	20-50			30-80	20-50		30-60		

The cutting parameters recommended are suitable for wet machining.

Advice: For internal machining and endface machining, the cutting speed should be reduced by 30%-40%.

Recommended cutting parameters for QC series shallow groove tools

Processed material	Recommended insert material (cutting speed m/min)		A: Tool feed for grooving(mm/r)				
	PVD Coating		B: Tool feed for horizontal processing(mm/r)				
	YBG202	YBG205	C: Depth of cut for horizontal processing(mm)				
			QC**R/L050-120	QC**R/L125-225	QC**R/L230-325	QC**R/L330-400	QC**R/L400-480
Carbon Steel	80-180	80-180	A: 0.03-0.08	A: 0.04-0.09	A: 0.05-0.1	A: 0.05-0.12	A: 0.05-0.12
			Non-horizontal processing	B: 0.04-0.09	B: 0.05-0.1	B: 0.05-0.1	B: 0.05-0.1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.8(MAX)
Alloy Steel	80-160	80-160	A: 0.03-0.07	A: 0.04-0.08	A: 0.05-0.09	A: 0.05-0.1	A: 0.05-0.1
			Non-horizontal processing	B: 0.04-0.08	B: 0.05-0.09	B: 0.05-0.1	B: 0.05-0.1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.5(MAX)
Stainless Steel	60-130	60-130	A: 0.03-0.07	A: 0.04-0.08	A: 0.05-0.09	A: 0.05-0.1	A: 0.05-0.1
			Non-horizontal processing	B: 0.04-0.08	B: 0.05-0.09	B: 0.05-0.1	B: 0.05-0.1
			Non-horizontal processing	C: 0.3(MAX)	C: 0.5(MAX)	C: 0.5(MAX)	C: 0.5(MAX)

The cutting parameters above are applicable to external grooving. When machining internal grooves, please reduce the cutting speed and feed by 10%.



6series

- *ISO metric thread*
- *General pitch thread*
- *Whitworth thread*
- *Unified thread*
- *British taper pipe thread*
- *American taper pipe thread*



Threading insert

Fully ground high precision inserts realize high quality, high precision threading for a variety of materials e.g. steel, stainless steel, difficult-to-machine materials.

How to select threading tools

Structure of threading tools selected table

- Categorized as external threading and internal threading according to machining type.
- Separately listed out according to series.

Dimensions of product

Indicating external threading or internal threading

External threading tools

R type shown

Type	Block	Basic dimensions(mm)					Applicable inserts	Inserts screw	Shim	Shim screw	Wrench	
		H	HF	B	LF	WF						
ZSER	1616H16	▲	16	16	16	100	20	Z16ER□□□□	R0 M3-SX12T1	MT16-□□□□	SMX8C	WT10P
	2020K16	▲	20	20	20	125	25					
	2525M16	▲	25	25	25	150	32					
	3225P16	▲	32	32	25	170	32					
	3232P16	▲	32	32	32	170	32					
	4040S22	□	40	40	40	250	50					
ZSEL	1616H16	▲	16	16	16	100	20	Z16EL□□□□	R0 M3-SX12T1	MT16-□□□□	SMX8C	WT10P
	2020K16	▲	20	20	20	125	25					
	2525M16	▲	25	25	25	150	32					
	3225P16	▲	32	32	25	170	32					
	3232P16	▲	32	32	32	170	32					
	4040S22	□	40	40	40	250	50					

▲ Stock available □ Make-to-order

Threading insert type
Including type, standard, tolerance class

ISO metric thread (with end)

ISO 965-1980 DIN 13
GB/T 197-2003 Tolerance class 6g/6H

Diagram of thread pitch

R type L type

Type	Basic dimensions(mm)				Recommended coating grade			
	The right hand tools	The left hand tools	Pitch	S	IC	D1	YBG203	YBG205
Z16ER0.5ISO	Z16EL0.5ISO	0.50	3.52	9.525	4.0	★	□	
Z16ER0.75ISO	Z16EL0.75ISO	0.75	3.52	9.525	4.0	★	□	
Z16ER1.0ISO	Z16EL1.0ISO	1.00	3.52	9.525	4.0	★	□	
Z16ER1.25ISO	Z16EL1.25ISO	1.25	3.52	9.525	4.0	★	□	
Z16ER1.5ISO	Z16EL1.5ISO	1.50	3.52	9.525	4.0	★	□	
Z16ER1.75ISO	Z16EL1.75ISO	1.75	3.52	9.525	4.0	★	□	
Z16ER2.0ISO	Z16EL2.0ISO	2.00	3.52	9.525	4.0	★	□	
Z16ER2.5ISO	Z16EL2.5ISO	2.50	3.52	9.525	4.0	★	□	
Z16ER3.0ISO	Z16EL3.0ISO	3.00	3.52	9.525	4.0	★	□	
Z22ER3.5ISO	Z22EL3.5ISO	3.50	4.65	12.7	5.0	★	□	
Z22ER4.0ISO	Z22EL4.0ISO	4.00	4.65	12.7	5.0	★	□	
Z22ER4.5ISO	Z22EL4.5ISO	4.50	4.65	12.7	5.0	★	□	
Z22ER5.0ISO	Z22EL5.0ISO	5.00	4.65	12.7	5.0	★	□	
Z22ER5.5ISO	Z22EL5.5ISO	5.50	4.65	12.7	5.0	★	□	
Z22ER6.0ISO	Z22EL6.0ISO	6.00	4.65	12.7	5.0	★	□	

★ Recommended grade (always stock available) ● Available grade (always stock available) □ Make-to-order

Product specification
Including type (right hand and left hand), basic dimensions, stock

Dimension diagram of insert

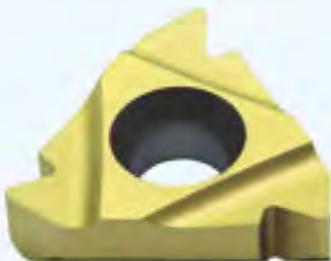


TURNING



Threading tools

Threading tools overview	• A288-A291
Introduction on threading insert grade and chipbreaker	• A292
Threading inserts	• A293-A306
Threading inserts code key	A293
ISO metric thread	A294-A295
General pitch thread	A296
Whitworth thread	A297
Unified thread	A298
British taper pipe thread	A299
American taper pipe thread	A300
ISO metric thread(PP chipbreaker)	A301
General pitch thread(PP chipbreaker)	A302
Whitworth thread(PP chipbreaker)	A303
Unified thread(PP chipbreaker)	A304
British taper pipe thread(PP chipbreaker)	A305
American taper pipe thread(PP chipbreaker)	A306
Threading tools	• A307-A309
Threading tools code key	A307
External threading tools	A308
Internal threading tools	A309
Thick threading inserts	• A310-A320
Thick threading inserts code key	A310
ISO metric thread	A311-A312
General pitch thread	A313
Whitworth thread	A314
Unified thread	A315
British taper pipe thread	A316
American taper pipe thread	A317
Thick threading insert tools code key	A318
External threading tools	A319
Internal threading tools	A320
Application information for threading	• A321-A331





TURNING Threading Tools

Threading tools overview

General turning

Feeding and grinding

Threading

Threading tools overview

Applications		For general use						
Legend of thread profile								
Thread name		ISO metric thread With end	General pitch thread Without end	General pitch thread Without end				
Thread profile		ISO	60	55				
Picture of insert (length: 11, 16, 22mm)		R style shown 	R style shown 	R style shown 				
Pitch		Pitch/mm		Pitch/mm (pitch/Inch)		Pitch/mm (pitch/Inch)		
Tool holder		Pitch/mm		Pitch/mm (pitch/Inch)		Pitch/mm (pitch/Inch)		
External thread		16×16×100 20×20×125 25×25×150 32×25×170 32×32×170 40×40×250	0.5~6.0	1.0~3.0	0.5~5.0 (5~48)	0.5~5.0 (5~48)	0.5~5.0 (5~48)	0.5~5.0 (5~48)
	R-type shown A308							
Internal thread		16×125×12 16×150×16 16×150×20 20×150×25 20×180×25 25×150×32 32×200×40 32×250×40 40×300×50 50×350×63	0.5~6.0	1.0~3.0	0.5~5.0 (5~48)	0.5~5.0 (5~48)	0.5~5.0 (5~48)	0.5~5.0 (5~48)
	R-type shown A309							



General turning

Forming and grooving

Threading

Threading tools overview

For general use		For aerospace industry		Heater, gas and water pipe thread		For gas and water faucet and pipe connection	
Whitworth thread		Unified thread (American standard threads)		British taper pipe thread		American taper pipe thread	
W		UN		BSPT		NPT	
R style shown		R style shown		R style shown		R style shown	
A297 A303		A298 A304		A299 A305		A300 A306	
Pitch/mm (pitch/Inch)		Pitch/mm (pitch/Inch)		Pitch/mm (pitch/Inch)		Pitch/mm (pitch/Inch)	
8~19	11~19	8~24	12~16	11~28	11~19	8~27	11.5~18
8~19	11~19	8~24	12~16	11~28	11~19	8~27	11.5~18

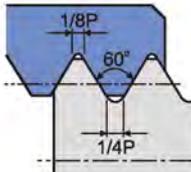
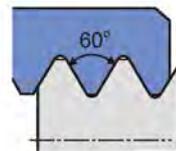
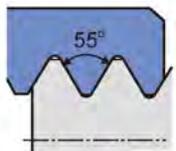


General turning

Feeding and grinding

Threading

Threading tools overview

Applications		For general use			
Legend of thread profile					
Thread name		ISO metric thread With end	General pitch thread Without end	General pitch thread Without end	
Thread profile		GM	60	55	
Picture of insert (length: 11, 16, 22mm)		R style shown  A311	R style shown  A313	R style shown  A313	
Tool holder	Pitch	Dimensions (mm) (H×W×L) (Dia×L×Min. dia)	Pitch/mm	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)
	External thread  R-type shown A319	16×16×100 20×20×125 25×25×150 32×25×170 32×32×170 40×40×250	0.5~6.0	0.5~5.0 (5~48)	0.5~5.0 (5~48)
Internal thread  R-type shown A320	16×125×12 16×150×16 16×150×20 20×150×25 20×180×25 25×150×32 32×200×40 32×250×40 40×300×50 50×350×63	0.5~6.0	0.5~5.0 (5~48)	0.5~5.0 (5~48)	

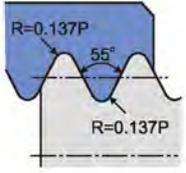
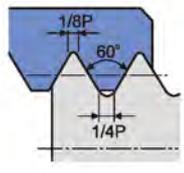
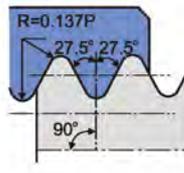
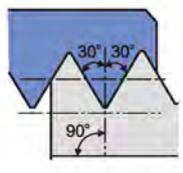


General turning

Facing and grooving

Threading

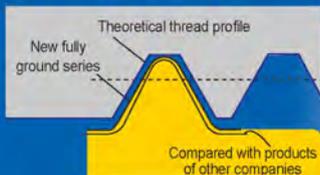
Threading tools overview

For general use	For aerospace industry	Heater, gas and water pipe thread	For gas and water faucet and pipe connection
			
Whitworth thread	Unified thread (American standard threads)	British taper pipe thread	American taper pipe thread
W	UN	BSPT	NPT
R style shown	R style shown	R style shown	R style shown
			
A314	A315	A316	A317
Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)	Pitch/mm (pitch/Inch)
8~16	8~20	11~28	8~27
8~16	8~20	11~28	8~27

suitable for threading in a variety of materials

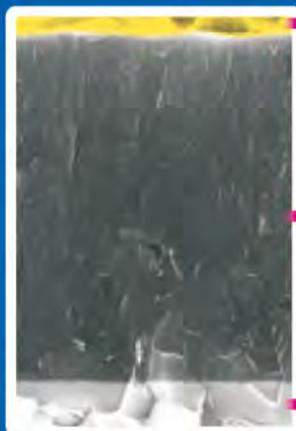
New nano coating grade YBG203

- Specially treated edge for superior surface quality
- Sharp nose with small cutting resistance and superior performance
- Full ground inserts with high dimensional precision for high quality threading



Thread type	Grade of tolerance
ISO metric thread	6g/6H
Whitworth thread W	Medium Class A
British taper pipe thread	Standard BSPT
Unified thread	2A/2B
American taper pipe thread	Standard NPT

- New nano coating grade specially designed for threading with longer insert life



Advanced surface treatment techniques effectively reduce friction and allows for better wear observation.

Advanced TiAlN substrate nano coating, in combination with proper coating ingredients, improves the mechanical and thermal properties of coating.

Further optimizing coating structure, improving coating stress, enhancing bond strength of coating and substrate.



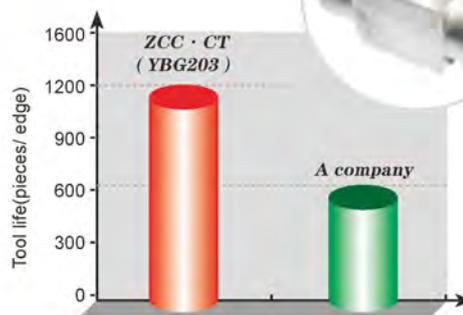
Case:

Workpiece material: 42CrMo(HB260)

Insert: Z16ER2.0ISO/YBG203

Thread pitch: p=2.0mm

Cutting data: Vc=120 m/min



84% tool life improvement of ZCC-CT product than that of company A under the same cutting condition.



Threading inserts code key

Insert size

Code	Diameter of IC(mm)
Z11	Ø6.35
Z16	Ø9.525
Z22	Ø12.7

Cutting style

- E -External threading inserts
- I -Internal threading inserts

Cutting direction

- R-Right
- L-Left

Z16 E R 2.0 ISO (PP)

Thread pitch

Full profile (Range of Thread pitch is indicated by numbers).

mm	TPI
0.5-6.0	48-5

V profile (Range of Thread pitch is indicated by letters).

	mm	TPI
A	0.5-1.5	48-16
AG	0.5-3.0	48-8
G	1.75-3.0	14-8
N	3.5-5.0	7-5

Thread specification	Range of thread pitch
ISO metric thread	0.5-6.0
General pitch thread	0.5-5.0
Whitworth thread W	8-19
British taper pipe thread	11-28
Unified thread	8-24
American taper pipe thread	8-27

Thread profile

- ISO—ISO metric 60° thread
- 60—60° general pitch thread
- 55—55° general pitch thread
- W—Whitworth thread
- UN—Unified thread(American standard threads)
- BSPT—British taper pipe thread
- NPT—American taper pipe thread

Chip breaker

- fully ground edge insert
- PP -3-Dimensional chip-breaking insert

General turning

Forming and grooving

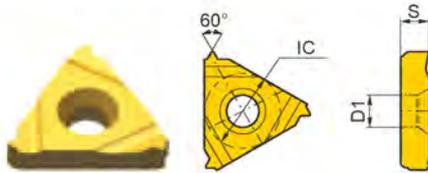
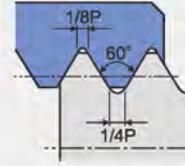
Threading

Threading inserts

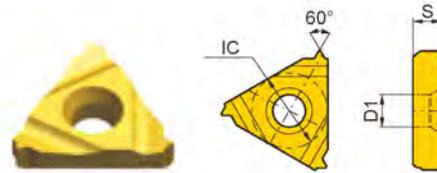


ISO metric thread (with end)

ISO 965-1980 DIN 13
GB/T 197-2003 Tolerance class: 6g/6H



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	IC	D1	YBG203	YBG205
External thread	Z16ER0.5ISO	Z16EL0.5ISO	0.50	3.52	9.525	4.0	★	○
	Z16ER0.75ISO	Z16EL0.75ISO	0.75	3.52	9.525	4.0	★	○
	Z16ER1.0ISO	Z16EL1.0ISO	1.00	3.52	9.525	4.0	★	○
	Z16ER1.25ISO	Z16EL1.25ISO	1.25	3.52	9.525	4.0	★	○
	Z16ER1.5ISO	Z16EL1.5ISO	1.50	3.52	9.525	4.0	★	○
	Z16ER1.75ISO	Z16EL1.75ISO	1.75	3.52	9.525	4.0	★	○
	Z16ER2.0ISO	Z16EL2.0ISO	2.00	3.52	9.525	4.0	★	○
	Z16ER2.5ISO	Z16EL2.5ISO	2.50	3.52	9.525	4.0	★	○
	Z16ER3.0ISO	Z16EL3.0ISO	3.00	3.52	9.525	4.0	★	○
	Z22ER3.5ISO	Z22EL3.5ISO	3.50	4.65	12.7	5.0	★	○
	Z22ER4.0ISO	Z22EL4.0ISO	4.00	4.65	12.7	5.0	★	○
	Z22ER4.5ISO	Z22EL4.5ISO	4.50	4.65	12.7	5.0	★	○
	Z22ER5.0ISO	Z22EL5.0ISO	5.00	4.65	12.7	5.0	★	○
	Z22ER5.5ISO	Z22EL5.5ISO	5.50	4.65	12.7	5.0	★	○
	Z22ER6.0ISO	Z22EL6.0ISO	6.00	4.65	12.7	5.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Facing and grooving

Threading

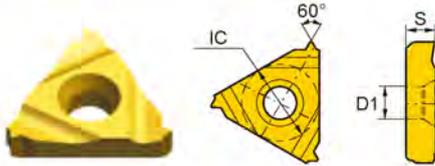
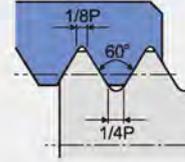
Threading inserts



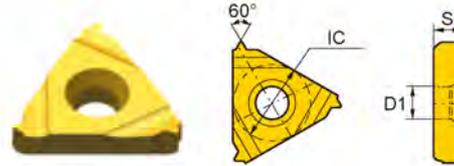


ISO metric thread (with end)

ISO 965-1980 DIN 13
GB/T 197-2003 Tolerance class: 6g/6H



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	IC	D1	YBG203	YBG205
Internal thread	Z11IR0.5ISO	Z11IL0.5ISO	0.50	3.05	6.35	3.2	★	○
	Z11IR0.75ISO	Z11IL0.75ISO	0.75	3.05	6.35	3.2	★	○
	Z11IR1.0ISO	Z11IL1.0ISO	1.00	3.05	6.35	3.2	★	○
	Z11IR1.25ISO	Z11IL1.25ISO	1.25	3.05	6.35	3.2	★	○
	Z11IR1.5ISO	Z11IL1.5ISO	1.50	3.05	6.35	3.2	★	○
	Z11IR1.75ISO	Z11IL1.75ISO	1.75	3.05	6.35	3.2	★	○
	Z11IR2.0ISO	Z11IL2.0ISO	2.00	3.05	6.35	3.2	★	○
	Z16IR0.5ISO	Z16IL0.5ISO	0.50	3.52	9.525	4.0	★	○
	Z16IR0.75ISO	Z16IL0.75ISO	0.75	3.52	9.525	4.0	★	○
	Z16IR1.0ISO	Z16IL1.0ISO	1.00	3.52	9.525	4.0	★	○
	Z16IR1.25ISO	Z16IL1.25ISO	1.25	3.52	9.525	4.0	★	○
	Z16IR1.5ISO	Z16IL1.5ISO	1.50	3.52	9.525	4.0	★	○
	Z16IR1.75ISO	Z16IL1.75ISO	1.75	3.52	9.525	4.0	★	○
	Z16IR2.0ISO	Z16IL2.0ISO	2.00	3.52	9.525	4.0	★	○
	Z16IR2.5ISO	Z16IL2.5ISO	2.50	3.52	9.525	4.0	★	○
	Z16IR3.0ISO	Z16IL3.0ISO	3.00	3.52	9.525	4.0	★	○
	Z22IR3.5ISO	Z22IL3.5ISO	3.50	4.65	12.7	5.0	★	○
	Z22IR4.0ISO	Z22IL4.0ISO	4.00	4.65	12.7	5.0	★	○
	Z22IR4.5ISO	Z22IL4.5ISO	4.50	4.65	12.7	5.0	★	○
	Z22IR5.0ISO	Z22IL5.0ISO	5.00	4.65	12.7	5.0	★	○
Z22IR5.5ISO	Z22IL5.5ISO	5.50	4.65	12.7	5.0	★	○	
Z22IR6.0ISO	Z22IL6.0ISO	6.00	4.65	12.7	5.0	★	○	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming and grooving

Threading

Threading inserts

Threading inserts

General pitch thread (without end)



	Type		Basic dimensions(mm)				Recommended coating grade			
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	PAL/R	YBG203	YBG205	
External thread	55°	Z16ERA55	Z16ELA55	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		Z16ERG55	Z16ELG55	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		Z16ERAG55	Z16ELAG55	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★	○
		Z22ERN55	Z22ELN55	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
	60°	Z16ERA60	Z16ELA60	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		Z16ERG60	Z16ELG60	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		Z16ERAG60	Z16ELAG60	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★	○
		Z22ERN60	Z22ELN60	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

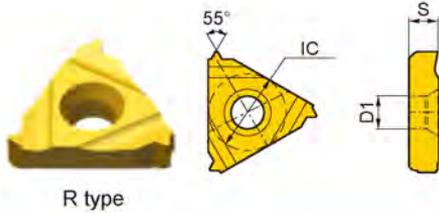
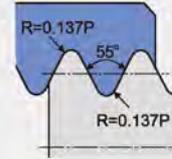


	Type		Basic dimensions(mm)				Recommended coating grade			
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	PAL/R	YBG203	YBG205	
Internal thread	55°	Z11IRA55	Z11ILA55	0.5-1.5(48-16)	3.05	6.35	3.2	55°	★	○
		Z16IRA55	Z16ILA55	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		Z16IRG55	Z16ILG55	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		Z16IRAG55	Z16ILAG55	0.5-3.0(48-8)	3.52	9.525	4.0	55°	★	○
		Z22IRN55	Z22ILN55	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
	60°	Z11IRA60	Z11ILA60	0.5-1.5(48-16)	3.05	6.35	3.2	60°	★	○
		Z16IRA60	Z16ILA60	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		Z16IRG60	Z16ILG60	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		Z16IRAG60	Z16ILAG60	0.5-3.0(48-8)	3.52	9.525	4.0	60°	★	○
		Z22IRN60	Z22ILN60	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

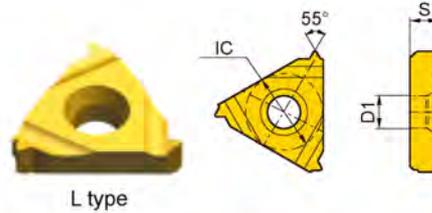
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Whitworth thread (with end)

ISO 228/1:1982,
DIN 259, B.S.84:1956
Tolerance class: Medium class A



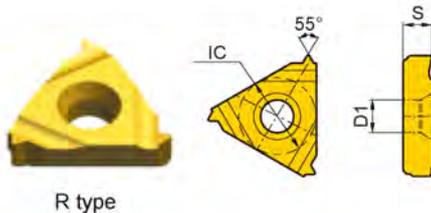
R type



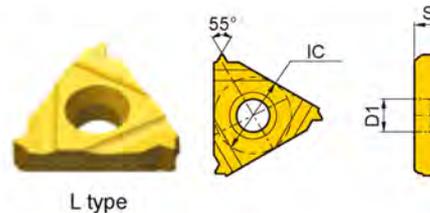
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
External thread	Z16ER8W	Z16EL8W	8	3.52	9.525	4.0	★	○
	Z16ER9W	Z16EL9W	9	3.52	9.525	4.0	★	○
	Z16ER10W	Z16EL10W	10	3.52	9.525	4.0	★	○
	Z16ER11W	Z16EL11W	11	3.52	9.525	4.0	★	○
	Z16ER12W	Z16EL12W	12	3.52	9.525	4.0	★	○
	Z16ER14W	Z16EL14W	14	3.52	9.525	4.0	★	○
	Z16ER16W	Z16EL16W	16	3.52	9.525	4.0	★	○
	Z16ER18W	Z16EL18W	18	3.52	9.525	4.0	★	○
	Z16ER19W	Z16EL19W	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
Internal thread	Z16IR8W	Z16IL8W	8	3.52	9.525	4.0	★	○
	Z16IR9W	Z16IL9W	9	3.52	9.525	4.0	★	○
	Z16IR10W	Z16IL10W	10	3.52	9.525	4.0	★	○
	Z16IR11W	Z16IL11W	11	3.52	9.525	4.0	★	○
	Z16IR12W	Z16IL12W	12	3.52	9.525	4.0	★	○
	Z16IR14W	Z16IL14W	14	3.52	9.525	4.0	★	○
	Z16IR16W	Z16IL16W	16	3.52	9.525	4.0	★	○
	Z16IR18W	Z16IL18W	18	3.52	9.525	4.0	★	○
	Z16IR19W	Z16IL19W	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming and grooving

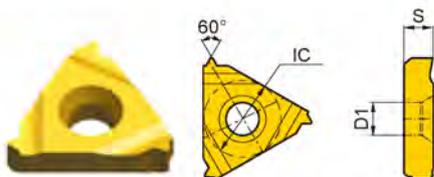
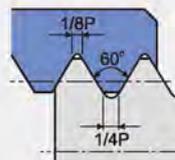
Threading

Threading inserts

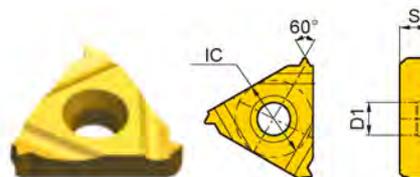
Threading inserts

Unified thread (with end)

ASME B1.1-1989
Tolerance class: 2A/2B



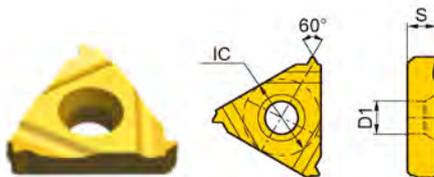
R type



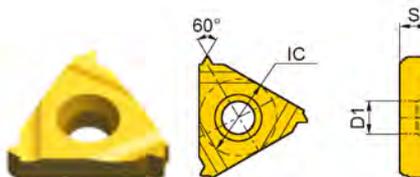
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
External thread	Z16ER8UN	Z16EL8UN	8	3.52	9.525	4.0	★	○
	Z16ER10UN	Z16EL10UN	10	3.52	9.525	4.0	★	○
	Z16ER12UN	Z16EL12UN	12	3.52	9.525	4.0	★	○
	Z16ER14UN	Z16EL14UN	14	3.52	9.525	4.0	★	○
	Z16ER16UN	Z16EL16UN	16	3.52	9.525	4.0	★	○
	Z16ER18UN	Z16EL18UN	18	3.52	9.525	4.0	★	○
	Z16ER20UN	Z16EL20UN	20	3.52	9.525	4.0	★	○
	Z16ER24UN	Z16EL24UN	24	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



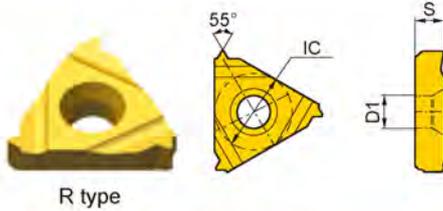
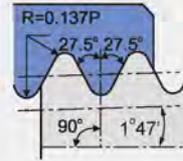
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
Internal thread	Z16IR8UN	Z16IL8UN	8	3.52	9.525	4.0	★	○
	Z16IR10UN	Z16IL10UN	10	3.52	9.525	4.0	★	○
	Z16IR12UN	Z16IL12UN	12	3.52	9.525	4.0	★	○
	Z16IR14UN	Z16IL14UN	14	3.52	9.525	4.0	★	○
	Z16IR16UN	Z16IL16UN	16	3.52	9.525	4.0	★	○
	Z16IR18UN	Z16IL18UN	18	3.52	9.525	4.0	★	○
	Z16IR20UN	Z16IL20UN	20	3.52	9.525	4.0	★	○
	Z16IR24UN	Z16IL24UN	24	3.52	9.525	4.0	★	○

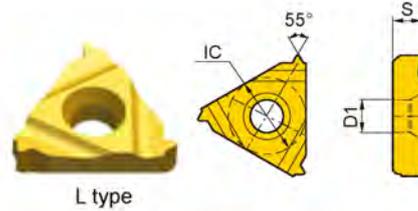
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

British taper pipe thread (with end)

ISO 7/1:1994
B.S.21:1985
Standard BSPT



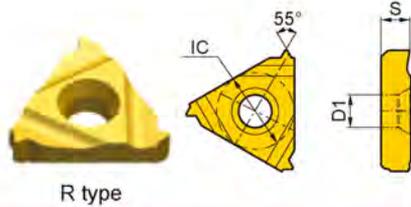
R type



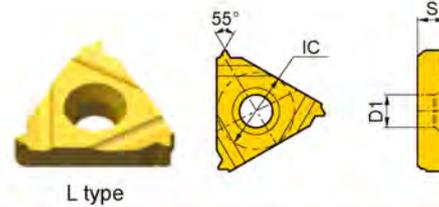
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
External thread	Z16ER11BSPT	Z16EL11BSPT	11	3.52	9.525	4.0	★	○
	Z16ER14BSPT	Z16EL14BSPT	14	3.52	9.525	4.0	★	○
	Z16ER19BSPT	Z16EL19BSPT	19	3.52	9.525	4.0	★	○
	Z16ER28BSPT	Z16EL28BSPT	28	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
Internal thread	Z16IR11BSPT	Z16IL11BSPT	11	3.52	9.525	4.0	★	○
	Z16IR14BSPT	Z16IL14BSPT	14	3.52	9.525	4.0	★	○
	Z16IR19BSPT	Z16IL19BSPT	19	3.52	9.525	4.0	★	○
	Z16IR28BSPT	Z16IL28BSPT	28	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming and grooving

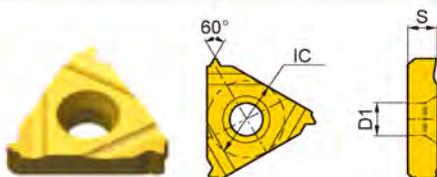
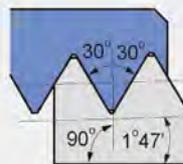
Threading

Threading inserts

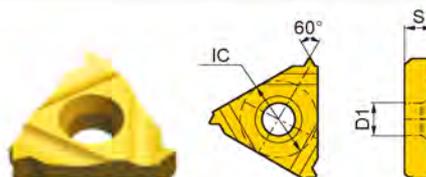
Threading inserts

American taper pipe thread (with end)

ASME B1.20.1-1983
Standard NPT



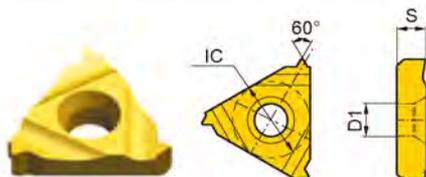
R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
External thread	Z16ER8NPT	Z16EL8NPT	8	3.52	9.525	4.0	★	○
	Z16ER11.5NPT	Z16EL11.5NPT	11.5	3.52	9.525	4.0	★	○
	Z16ER14NPT	Z16EL14NPT	14	3.52	9.525	4.0	★	○
	Z16ER18NPT	Z16EL18NPT	18	3.52	9.525	4.0	★	○
	Z16ER27NPT	Z16EL27NPT	27	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type

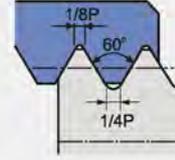
	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG203	YBG205
Internal thread	Z16IR8NPT	Z16IL8NPT	8	3.52	9.525	4.0	★	○
	Z16IR11.5NPT	Z16IL11.5NPT	11.5	3.52	9.525	4.0	★	○
	Z16IR14NPT	Z16IL14NPT	14	3.52	9.525	4.0	★	○
	Z16IR18NPT	Z16IL18NPT	18	3.52	9.525	4.0	★	○
	Z16IR27NPT	Z16IL27NPT	27	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

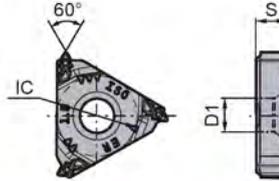
ISO metric thread (with end) PP chipbreaker

ISO 965-1980, DIN 13, GB/T 197-2003

Tolerance class: 6g/6H



R type

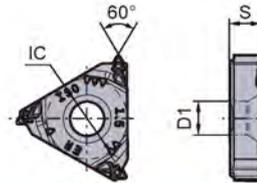


	Type	Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	Pitch	S	IC	D1	YB9120	YBG205
External thread	Z16ER1.0ISOPP	1.00	3.52	9.525	4.0	★	○
	Z16ER1.25ISOPP	1.25	3.52	9.525	4.0	★	○
	Z16ER1.5ISOPP	1.50	3.52	9.525	4.0	★	○
	Z16ER1.75ISOPP	1.75	3.52	9.525	4.0	★	○
	Z16ER2.0ISOPP	2.00	3.52	9.525	4.0	★	○
	Z16ER2.5ISOPP	2.50	3.52	9.525	4.0	★	○
	Z16ER3.0ISOPP	3.00	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



	Type	Basic dimensions(mm)				Recommended coating grade		
	The right hand tools	Pitch	S	IC	D1	YBG205H	YB9120	YBG205
Internal thread	Z11IR1.0ISOPP	1.00	3.05	6.35	3.2	○	★	○
	Z11IR1.25ISOPP	1.25	3.05	6.35	3.2	○	★	○
	Z11IR1.5ISOPP	1.50	3.05	6.35	3.2	○	★	○
	Z16IR1.0ISOPP	1.00	3.52	9.525	4.0		★	○
	Z16IR1.25ISOPP	1.25	3.52	9.525	4.0		★	○
	Z16IR1.5ISOPP	1.50	3.52	9.525	4.0		★	○
	Z16IR1.75ISOPP	1.75	3.52	9.525	4.0		★	○
	Z16IR2.0ISOPP	2.00	3.52	9.525	4.0		★	○
	Z16IR2.5ISOPP	2.50	3.52	9.525	4.0		★	○
	Z16IR3.0ISOPP	3.00	3.52	9.525	4.0		★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming and grooving

Threading

Threading inserts



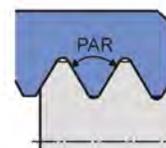
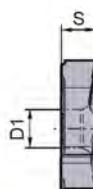
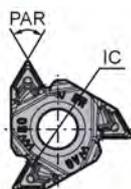
TURNING Threading Tools

Threading inserts

General pitch thread (without end) PP chipbreaker



R type

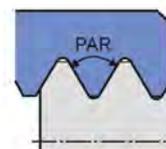
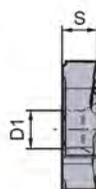
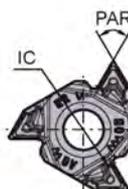


		Type	Basic dimensions(mm)				Recommended coating grade		
		The right hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	PAR	YB9120	YBG205
External thread	55°	Z16ERA55PP	0.5-1.5(48-16)	3.52	9.525	4.0	55°	★	○
		Z16ERG55PP	1.75-3.0(14-8)	3.52	9.525	4.0	55°	★	○
		Z16ERAG55PP	0.5-0.3(48-8)	3.52	9.525	4.0	55°	★	○
		Z22ERN55PP	3.5-5.0(7-5)	4.65	12.7	5.0	55°	★	○
	60°	Z16ERA60PP	0.5-1.5(48-16)	3.52	9.525	4.0	60°	★	○
		Z16ERG60PP	1.75-3.0(14-8)	3.52	9.525	4.0	60°	★	○
		Z16ERAG60PP	0.5-0.3(48-8)	3.52	9.525	4.0	60°	★	○
		Z22ERN60PP	3.5-5.0(7-5)	4.65	12.7	5.0	60°	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



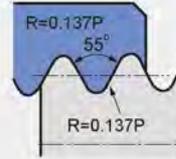
		Type	Basic dimensions(mm)				Recommended coating grade			
		The right hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	PAR	YBG205H	YB9120	YBG205
Internal thread	55°	Z11IRA55PP	0.5-1.5(48-16)	3.05	6.35	3.2	55°	○	★	○
		Z16IRA55PP	0.5-1.5(48-16)	3.52	9.525	4.0	55°		★	○
		Z16IRG55PP	1.75-3.0(14-8)	3.52	9.525	4.0	55°		★	○
		Z16IRAG55PP	0.5-3.0(48-8)	3.52	9.525	4.0	55°		★	○
		Z22IRN55PP	3.5-5.0(7-5)	4.65	12.7	5.0	55°		★	○
	60°	Z11IRA60PP	0.5-1.5(48-16)	3.05	6.35	3.2	60°	○	★	○
		Z16IRA60PP	0.5-1.5(48-16)	3.52	9.525	4.0	60°		★	○
		Z16IRG60PP	1.75-3.0(14-8)	3.52	9.525	4.0	60°		★	○
		Z16IRAG60PP	0.5-3.0(48-8)	3.52	9.525	4.0	60°		★	○
		Z22IRN60PP	3.5-5.0(7-5)	4.65	12.7	5.0	60°		★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

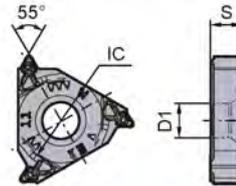
General turning
 Facing and grooving
 Threading
 Threading inserts

Whitworth thread (with end) PP chipbreaker

ISO 228/1:1982, DIN 259, B.S.84:1956
Tolerance class: Medium class A



R type

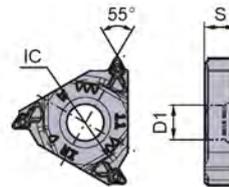


	Type	Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
External thread	Z16ER11WPP	11	3.52	9.525	4.0	★	○
	Z16ER14WPP	14	3.52	9.525	4.0	★	○
	Z16ER19WPP	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



	Type	Basic dimensions(mm)				Recommended coating grade		
	The right hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YBG205H	YB9120	YBG205
Internal thread	Z11IR14WPP	14	3.05	6.35	3.2	○	★	
	Z16IR11WPP	11	3.52	9.525	4.0		★	○
	Z16IR14WPP	14	3.52	9.525	4.0		★	○
	Z16IR19WPP	19	3.52	9.525	4.0		★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Facing and grooving

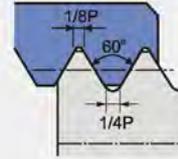
Threading

Threading inserts

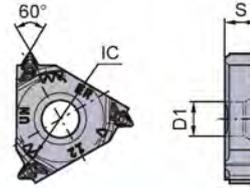


Unified thread (with end) PP chipbreaker

ASME B1.1-1989
Tolerance class: 2A/2B



R type

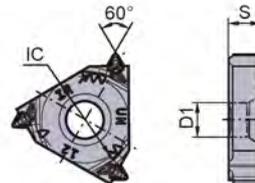


	Type	Basic dimensions(mm)				Recommended coating grade	
		Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
External thread	The right hand tools						
	Z16ER12UNPP	12	3.52	9.525	4.0	★	○
	Z16ER14UNPP	14	3.52	9.525	4.0	★	○
	Z16ER16UNPP	16	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type

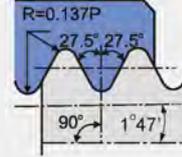


	Type	Basic dimensions(mm)				Recommended coating grade	
		Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
Internal thread	The right hand tools						
	Z16IR12UNPP	12	3.52	9.525	4.0	★	○
	Z16IR14UNPP	14	3.52	9.525	4.0	★	○
	Z16IR16UNPP	16	3.52	9.525	4.0	★	○

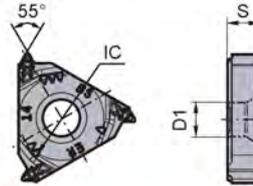
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

British taper pipe thread (with end) PP chipbreaker

ISO 7/1: 1994, B.S.21:1985
Standard BSPT



R type

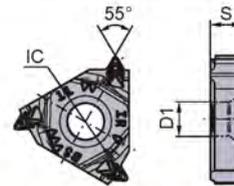


	Type	Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
External thread	Z16ER11BSPTPP	11	3.52	9.525	4.0	★	○
	Z16ER14BSPTPP	14	3.52	9.525	4.0	★	○
	Z16ER19BSPTPP	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



	Type	Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
Internal thread	Z16IR11BSPTPP	11	3.52	9.525	4.0	★	○
	Z16IR14BSPTPP	14	3.52	9.525	4.0	★	○
	Z16IR19BSPTPP	19	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming limit grooving

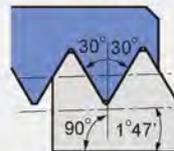
Threading

Threading inserts

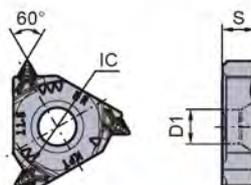


American taper pipe thread (with end) PP chipbreaker

ASME B1.20.1-1983
Standard NPT



R type

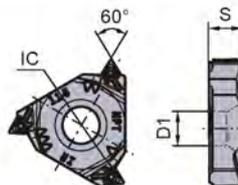


	Type	Basic dimensions(mm)				Recommended coating grade	
		Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
External thread	The right hand tools						
	Z16ER11.5NPTPP	11.5	3.52	9.525	4.0	★	○
	Z16ER14NPTPP	14	3.52	9.525	4.0	★	○
	Z16ER18NPTPP	18	3.52	9.525	4.0	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



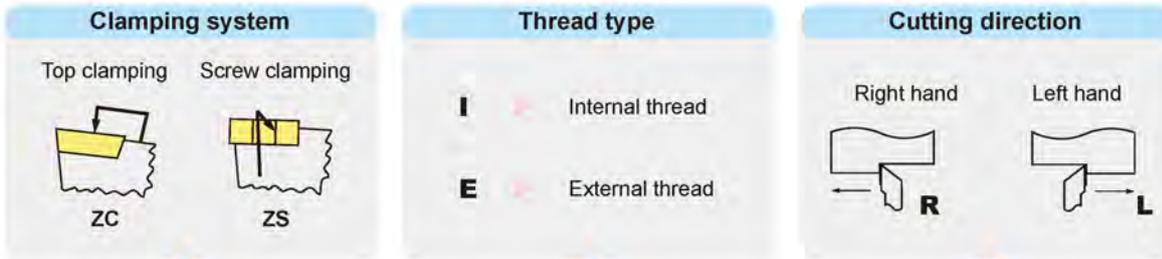
R type



	Type	Basic dimensions(mm)				Recommended coating grade	
		Pitch/mm (pitch/Inch)	S(mm)	IC(mm)	D1(mm)	YB9120	YBG205
Internal thread	The right hand tools						
	Z16IR11.5NPTPP	11.5	3.52	9.525	4.0	★	○
	Z16IR14NPTPP	14	3.52	9.525	4.0	★	○
	Z16IR18NPTPP	18	3.52	9.525	4.0	★	○

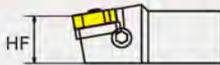
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Threading tools code key



ZS E R 20 20 K 16 (C)

Nose height (mm)



Note: 00 for round tool holder.
Only to integer, for example: h=8mm is labeled as 08.

Shank width (mm)



Note: Diameter for round tool holder
for example: b=8mm is labeled as 08.

Tool length (mm)

Code	H	K	M	P	Q	R	S	T	U
Length	100	125	150	170	180	200	250	300	350

Insert size (mm)

Code	11	16	22
Triangle side length	11	16	22
Inscribed circle	6.35	9.525	12.70

C—Inner-cooling

General turning

Forming and grooving

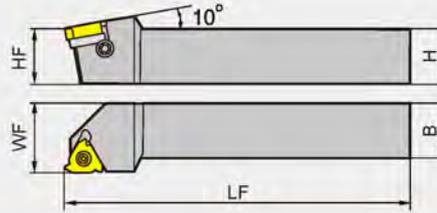
Threading

Threading tools

External threading tools



R-type shown



Type	Stock	Basic dimensions(mm)					Applicable inserts	Inserts screw	Shim	Shim screw	Wrench						
		H	HF	B	LF	WF											
ZSER	1616H16	▲	16	16	16	100	20										
	2020K16	▲	20	20	20	125	25										
	2525M16	▲	25	25	25	150	32										
	3225P16	▲	32	32	25	170	32										
	3232P16	▲	32	32	32	170	40										
	2525M22	▲	25	25	25	150	32										
	3225P22	▲	32	32	25	170	32										
	3232P22	▲	32	32	32	170	40										
	4040S22	△	40	40	40	250	50										
ZSEL	1616H16	▲	16	16	16	100	20										
	2020K16	▲	20	20	20	125	25										
	2525M16	▲	25	25	25	150	32										
	3225P16	▲	32	32	25	170	32										
	3232P16	▲	32	32	32	170	40										
	2525M22	▲	25	25	25	150	32										
	3225P22	▲	32	32	25	170	32										
	3232P22	▲	32	32	32	170	40										
	4040S22	△	40	40	40	250	50										

▲Stock available △Make-to-order

General turning

Facing and grooving

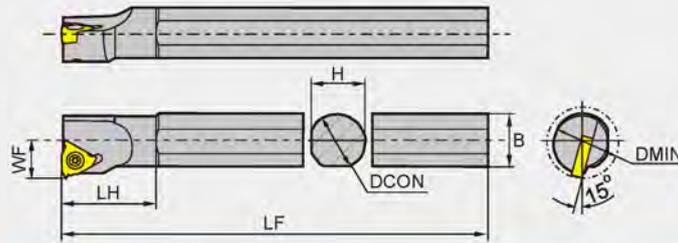
Threading

Threading tools

Internal threading tools



R-type shown



Type	Stock	Basic dimensions(mm)							Applicable inserts	Inserts screw	Shim	Shim screw	Wrench						
		DCON	LF	B	DMIN	WF	H	LH											
ZSIR	0016K11	▲	16	125	15.5	12	10	15	20.9	Z11IR□□□□	I60 M2.5×6.5T	---	---	WT08IP					
	0016M11	▲	16	150	16	16	10.5	15	25.9										
	0016M16	▲	16	150	15.5	20	12	15	27										
	0020M16	▲	20	150	19	25	14	18	28.7	Z16IR□□□□	I60 M3.5×08TT	---	---	WT10IP					
	0020Q16	▲	20	180	19	25	14	18	34										
	0025M16	▲	25	150	24	32	17	23	28.8										
	0032R16	▲	32	200	31	40	22	30	30.9										
	0032S16	▲	32	250	31	40	22	30	30.9										
	0040T16	▲	40	300	38.5	50	27	37	31.5										
	0050U16	▲	50	350	48.5	63	35	49	40.2	Z22IR□□□□	I60 M5×13.2	---	---	WT15IP					
	0020Q22	▲	20	180	19	25	15	18	35										
	0025R22	▲	25	200	24	32	19	23	39										
	0032S22	▲	32	250	31	40	22	30	36.4										
	0040T22	▲	40	300	38.5	50	27	37	37.2										
	0050U22	▲	50	350	48.5	63	35	47	42.6	Z11IL□□□□	I60 M2.5×6.5T	---	---	WT08IP					
ZSIL	0016K11	▲	16	125	15.5	12	10	15	20.9										
	0016M11	▲	16	150	16	16	10.5	15	25.9										
	0016M16	▲	16	150	16	20	12	15	27						Z16IL□□□□	I60 M3.5×08TT	---	---	WT10IP
	0020M16	▲	20	150	19	25	14	18	28.7										
	0020Q16	▲	20	180	19	25	14	18	34										
	0025M16	▲	25	150	24	32	17	23	28.8										
	0032R16	▲	32	200	31	40	22	30	30.9										
	0032S16	▲	32	250	31	40	22	30	30.9										
	0040T16	▲	40	300	38.5	50	27	37	31.5						Z22IL□□□□	I60 M4×15X	MT22-□□MN	SM5×8.5	WT15IP
	0050U16	▲	50	350	48.5	63	35	49	40.2										
	0020Q22	▲	20	180	19	25	15	18	35										
	0025R22	▲	25	200	24	32	19	23	39										
	0032S22	▲	32	250	31	40	22	30	36.4										
	0040T22	▲	40	300	38.5	50	27	37	37.2										
	0050U22	▲	50	350	48.5	63	35	47	42.6										

▲Stock available △Make-to-order

General turning

Turning with drawing

Threading

Threading tools



Thick threading inserts

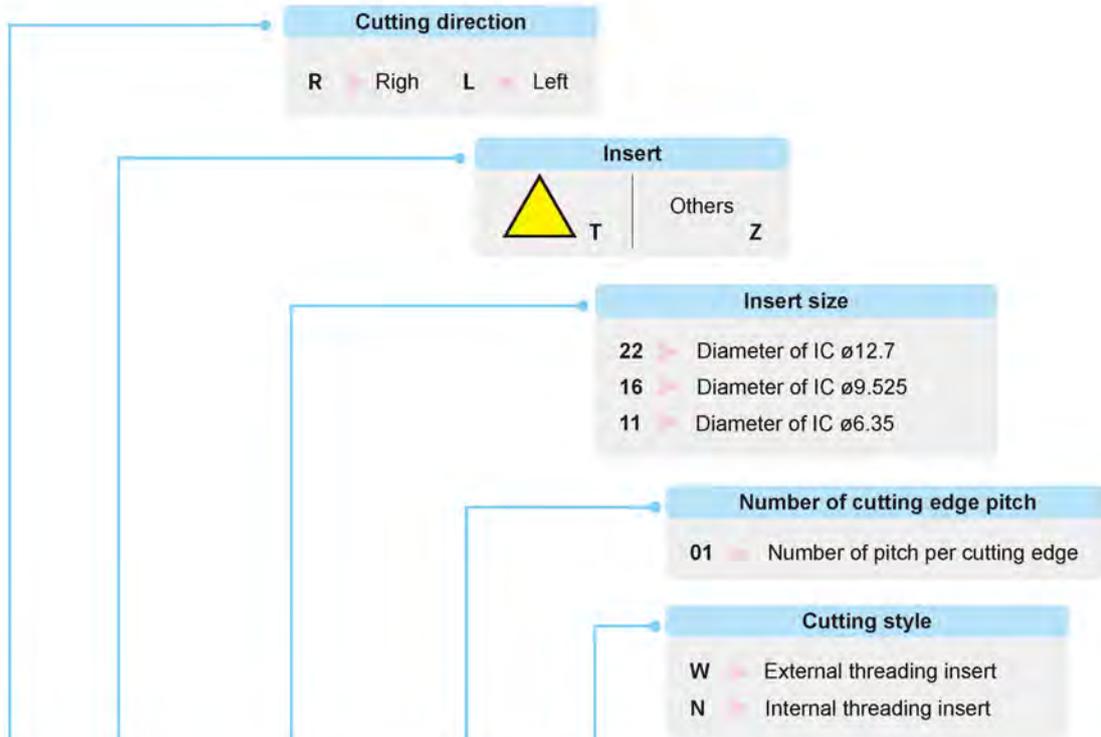
Thick threading inserts code key

General turning

Feeding and grinding

Threading

Thick threading inserts



R T 22. 01 W- 4.50 GM

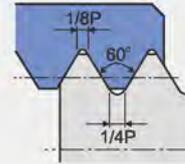
Thread pitch		
full profile (range of Thread pitch is indicated by numbers)		
mm	TPI	
0.35-0.9	72-2	
V profile (range of Thread pitch is indicated by numbers)		
letter	mm	TPI
A	0.5-1.5	48-16
AG	0.5-3.0	48-8
G	1.75-3.0	14-8
N	3.5-5.0	7-5
Q	5.5-6.0	41/2-4

Thread profile
GM —ISO metric 60° thread
60 —60° general pitch thread
55 —55° general pitch thread
W —Whitworth thread
UN —Unified thread
BSPT —British taper pipe thread
NPT —American taper pipe thread

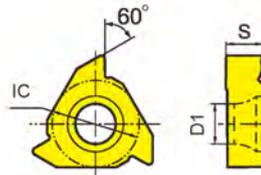


ISO metric thread (with end)

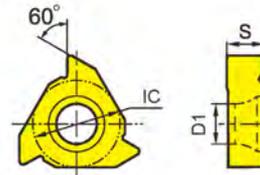
ISO 965-1980 DIN 13
GB/T 197-2003 Tolerance class: 6g/6H



R type



L type



	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	IC	D1	YBG201	
							R	L
External thread	RT16.01W-0.50GM	LT16.01W-0.50GM	0.50	3.97	9.525	4.4	○	○
	RT16.01W-0.75GM	LT16.01W-0.75GM	0.75	3.97	9.525	4.4	○	○
	RT16.01W-1.00GM	LT16.01W-1.00GM	1.00	3.97	9.525	4.4	○	○
	RT16.01W-1.25GM	LT16.01W-1.25GM	1.25	3.97	9.525	4.4	★	○
	RT16.01W-1.50GM	LT16.01W-1.50GM	1.50	3.97	9.525	4.4	★	★
	RT16.01W-1.75GM	LT16.01W-1.75GM	1.75	3.97	9.525	4.4	★	○
	RT16.01W-2.00GM	LT16.01W-2.00GM	2.00	3.97	9.525	4.4	★	★
	RT16.01W-2.50GM	LT16.01W-2.50GM	2.50	3.97	9.525	4.4	★	○
	RT16.01W-3.00GM	LT16.01W-3.00GM	3.00	3.97	9.525	4.4	★	○
	RT22.01W-3.50GM	LT22.01W-3.50GM	3.50	5.56	12.7	5.5	★	○
	RT22.01W-4.00GM	LT22.01W-4.00GM	4.00	5.56	12.7	5.5	★	○
	RT22.01W-4.50GM	LT22.01W-4.50GM	4.50	5.56	12.7	5.5	★	○
	RT22.01W-5.00GM	LT22.01W-5.00GM	5.00	5.56	12.7	5.5	★	○
	RT22.01W-5.50GM	LT22.01W-5.50GM	5.50	5.56	12.7	5.5	○	○
	RT22.01W-6.00GM	LT22.01W-6.00GM	6.00	5.56	12.7	5.5	★	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



General turning

Parting and grooving

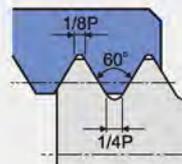
Threading

Thick threading inserts

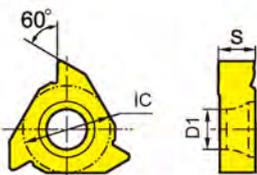


ISO metric thread (with end)

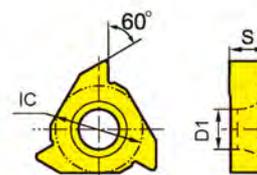
ISO 965-1980 DIN 13
GB/T 197-2003 Tolerance class: 6g/6H



R type



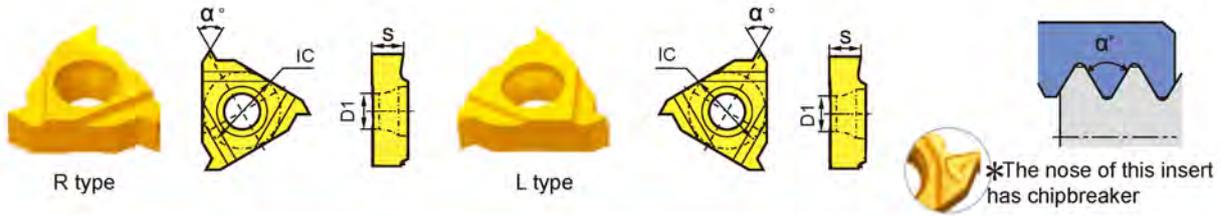
L type



	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch	S	IC	D1	YBG201	
							R	L
Internal thread	RT11.01N-0.50GM	LT11.01N-0.50GM	0.50	3.18	6.35	2.8	○	○
	RT11.01N-0.75GM	LT11.01N-0.75GM	0.75	3.18	6.35	2.8	○	○
	RT11.01N-1.00GM	LT11.01N-1.00GM	1.00	3.18	6.35	2.8	○	○
	RT11.01N-1.25GM	LT11.01N-1.25GM	1.25	3.18	6.35	2.8	○	○
	RT11.01N-1.50GM	LT11.01N-1.50GM	1.50	3.18	6.35	2.8	★	○
	RT11.01N-1.75GM	LT11.01N-1.75GM	1.75	3.18	6.35	2.8	○	○
	RT11.01N-2.00GM	LT11.01N-2.00GM	2.00	3.18	6.35	2.8	★	○
	RT16.01N-0.50GM	LT16.01N-0.50GM	0.50	3.97	9.525	4.4	○	○
	RT16.01N-0.75GM	LT16.01N-0.75GM	0.75	3.97	9.525	4.4	○	○
	RT16.01N-1.00GM	LT16.01N-1.00GM	1.00	3.97	9.525	4.4	★	○
	RT16.01N-1.25GM	LT16.01N-1.25GM	1.25	3.97	9.525	4.4	○	○
	RT16.01N-1.50GM	LT16.01N-1.50GM	1.50	3.97	9.525	4.4	★	★
	RT16.01N-1.75GM	LT16.01N-1.75GM	1.75	3.97	9.525	4.4	○	○
	RT16.01N-2.00GM	LT16.01N-2.00GM	2.00	3.97	9.525	4.4	★	★
	RT16.01N-2.50GM	LT16.01N-2.50GM	2.50	3.97	9.525	4.4	★	★
	RT16.01N-3.00GM	LT16.01N-3.00GM	3.00	3.97	9.525	4.4	★	★
	RT22.01N-3.50GM	LT22.01N-3.50GM	3.50	5.56	12.7	5.5	○	○
	RT22.01N-4.00GM	LT22.01N-4.00GM	4.00	5.56	12.7	5.5	★	○
	RT22.01N-4.50GM	LT22.01N-4.50GM	4.50	5.56	12.7	5.5	○	○
	RT22.01N-5.00GM	LT22.01N-5.00GM	5.00	5.56	12.7	5.5	★	○
RT22.01N-5.50GM	LT22.01N-5.50GM	5.50	5.56	12.7	5.5	○	○	
RT22.01N-6.00GM	LT22.01N-6.00GM	6.00	5.56	12.7	5.5	★	○	

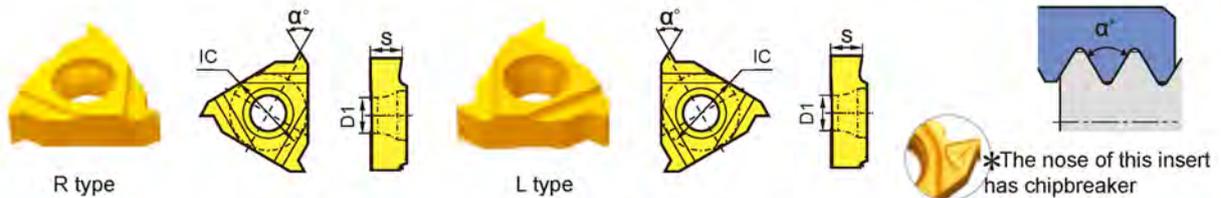
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General pitch thread (without end)



	Type		Basic dimensions(mm)					Recommended coating grade		
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	α°	YBG201		
								R	L	
External thread	60°	RT16.01W-A60	LT16.01W-A60	0.5-1.5(48-16)	3.97	9.525	4.4	60°	★	○
		RT16.01W-G60	LT16.01W-G60	1.75-3.0(14-8)	3.97	9.525	4.4	60°	○	○
		RT16.01W-G60P*	LT16.01W-G60P*	1.75-3.0(14-8)	3.97	9.525	4.4	60°	★	○
		RT16.01W-AG60	LT16.01W-AG60	0.5-3.0(48-8)	3.97	9.525	4.4	60°	★	○
		RT22.01W-N60P*	LT22.01W-N60P*	3.5-5.0(7-5)	5.56	12.7	5.5	60°	○	○
	55°	RT16.01W-A55	LT16.01W-A55	0.5-1.5(48-16)	3.97	9.525	4.4	55°	○	○
		RT16.01W-G55	LT16.01W-G55	1.75-3.0(14-8)	3.97	9.525	4.4	55°	○	○
		RT16.01W-G55P*	LT16.01W-G55P*	1.75-3.0(14-8)	3.97	9.525	4.4	55°	★	★
		RT16.01W-AG55	LT16.01W-AG55	0.5-3.0(48-8)	3.97	9.525	4.4	55°	★	○
		RT22.01W-N55P*	LT22.01W-N55P*	3.5-5.0(7-5)	5.56	12.7	5.5	55°	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



	Type		Basic dimensions(mm)					Recommended coating grade		
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	α°	YBG201		
								R	L	
Internal thread	60°	RT16.01N-A60	LT16.01N-A60	0.5-1.5 (48-16)	3.97	9.525	4.4	60°	○	○
		RT16.01N-G60	LT16.01N-G60	1.75-3.0(14-8)	3.97	9.525	4.4	60°	○	○
		RT16.01N-G60P*	LT16.01N-G60P*	1.75-3.0(14-8)	3.97	9.525	4.4	60°	★	○
		RT16.01N-AG60	LT16.01N-AG60	0.5-3.0 (48-8)	3.97	9.525	4.4	60°	★	○
		RT22.01N-N60P*	LT22.01N-N60P*	3.5-5.0 (7-5)	5.56	12.7	5.5	60°	○	○
	55°	RT16.01N-A55	LT16.01N-A55	0.5-1.5(48-16)	3.97	9.525	4.4	55°	○	○
		RT16.01N-G55	LT16.01N-G55	1.75-3.0(14-8)	3.97	9.525	4.4	55°	○	○
		RT16.01N-G55P*	LT16.01N-G55P*	1.75-3.0(14-8)	3.97	9.525	4.4	55°	★	○
		RT16.01N-AG55	LT16.01N-AG55	0.5-3.0(48-8)	3.97	9.525	4.4	55°	★	○
		RT22.01N-N55P*	LT22.01N-N55P*	3.5-5.0(7-5)	5.56	12.7	5.5	55°	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming and grooving

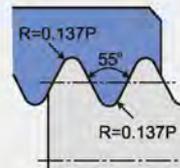
Threading

Thick threading inserts

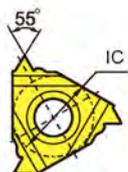
Thick threading inserts

Whitworth thread (with end)

ISO 228/1:1982,
DIN 259, B.S.84:1956
Tolerance class: Medium class A



R type



L type



	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
External thread	RT16.01W-8W	LT16.01W-8W	8	3.97	9.525	4.4	○	○
	RT16.01W-9W	LT16.01W-9W	9	3.97	9.525	4.4	○	○
	RT16.01W-10W	LT16.01W-10W	10	3.97	9.525	4.4	○	○
	RT16.01W-11W	LT16.01W-11W	11	3.97	9.525	4.4	○	○
	RT16.01W-12W	LT16.01W-12W	12	3.97	9.525	4.4	○	○
	RT16.01W-14W	LT16.01W-14W	14	3.97	9.525	4.4	○	○
	RT16.01W-16W	LT16.01W-16W	16	3.97	9.525	4.4	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type

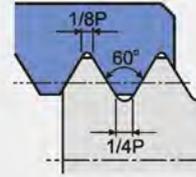


	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
Internal thread	RT16.01N-8W	LT16.01N-8W	8	3.97	9.525	4.4	○	○
	RT16.01N-9W	LT16.01N-9W	9	3.97	9.525	4.4	○	○
	RT16.01N-10W	LT16.01N-10W	10	3.97	9.525	4.4	○	○
	RT16.01N-11W	LT16.01N-11W	11	3.97	9.525	4.4	○	○
	RT16.01N-12W	LT16.01N-12W	12	3.97	9.525	4.4	○	○
	RT16.01N-14W	LT16.01N-14W	14	3.97	9.525	4.4	○	○
	RT16.01N-16W	LT16.01N-16W	16	3.97	9.525	4.4	○	○

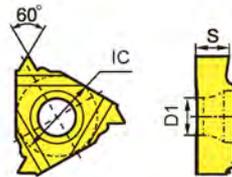
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Unified thread (with end)

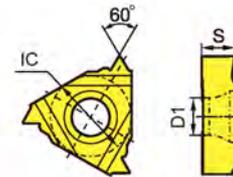
ASME B1.1-1989
Tolerance class: 2A/2B



R type



L type

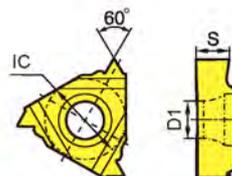


	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
External thread	RT16.01W-8UN	LT16.01W-8UN	8	3.97	9.525	4.4	○	○
	RT16.01W-10UN	LT16.01W-10UN	10	3.97	9.525	4.4	○	○
	RT16.01W-12UN	LT16.01W-12UN	12	3.97	9.525	4.4	○	○
	RT16.01W-14UN	LT16.01W-14UN	14	3.97	9.525	4.4	○	○
	RT16.01W-16UN	LT16.01W-16UN	16	3.97	9.525	4.4	○	○
	RT16.01W-18UN	LT16.01W-18UN	18	3.97	9.525	4.4	○	○
	RT16.01W-20UN	LT16.01W-20UN	20	3.97	9.525	4.4	○	○

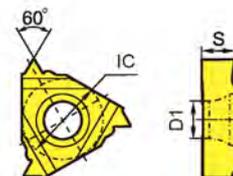
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type



	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
Internal thread	RT16.01N-8UN	LT16.01N-8UN	8	3.97	9.525	4.4	○	○
	RT16.01N-10UN	LT16.01N-10UN	10	3.97	9.525	4.4	○	○
	RT16.01N-12UN	LT16.01N-12UN	12	3.97	9.525	4.4	○	○
	RT16.01N-14UN	LT16.01N-14UN	14	3.97	9.525	4.4	○	○
	RT16.01N-16UN	LT16.01N-16UN	16	3.97	9.525	4.4	○	○
	RT16.01N-18UN	LT16.01N-18UN	18	3.97	9.525	4.4	○	○
	RT16.01N-20UN	LT16.01N-20UN	20	3.97	9.525	4.4	○	○
	RT16.01N-24UN	LT16.01N-24UN	24	3.97	9.525	4.4	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

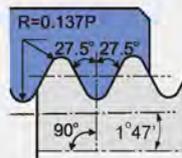
Forming limit grooving

Threading

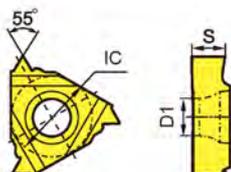
Thick threading inserts

British taper pipe thread (with end)

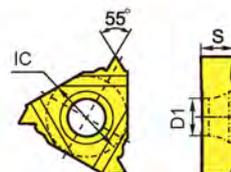
ISO 7/1: 1994
B.S.21: 1985
Standard BSPT



R type



L type

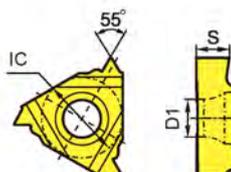


	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
External thread	RT16.01W-11 BSPT	LT16.01W-11 BSPT	11	3.97	9.525	4.4	○	○
	RT16.01W-14 BSPT	LT16.01W-14 BSPT	14	3.97	9.525	4.4	○	○
	RT16.01W-19 BSPT	LT16.01W-19 BSPT	19	3.97	9.525	4.4	○	○
	RT16.01W-28 BSPT	LT16.01W-28 BSPT	28	3.97	9.525	4.4	○	○

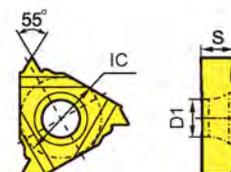
★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type



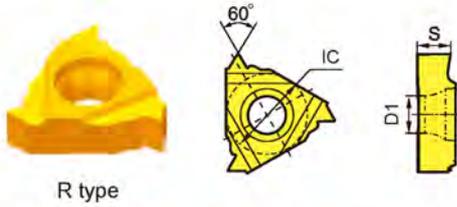
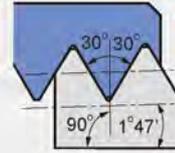
	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
Internal thread	RT16.01N-11 BSPT	LT16.01N-11 BSPT	11	3.97	9.525	4.4	○	○
	RT16.01N-14 BSPT	LT16.01N-14 BSPT	14	3.97	9.525	4.4	○	○
	RT16.01N-19 BSPT	LT16.01N-19 BSPT	19	3.97	9.525	4.4	○	○
	RT16.01N-28 BSPT	LT16.01N-28 BSPT	28	3.97	9.525	4.4	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

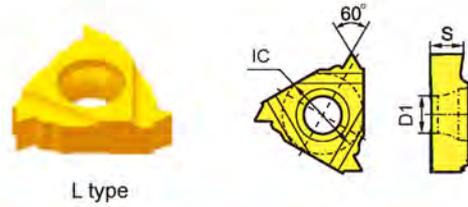


American taper pipe thread (with end)

ASME B1.20.1-1983
Standard NPT



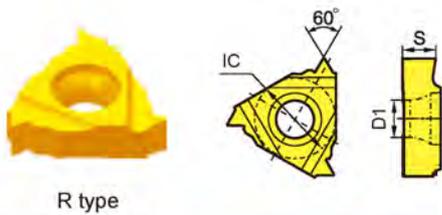
R type



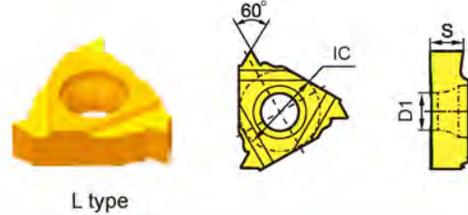
L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
External thread	RT16.01W-8NPT	LT16.01W-8NPT	8	3.97	9.525	4.4	○	○
	RT16.01W-11.5 NPT	LT16.01W-11.5NPT	11.5	3.97	9.525	4.4	○	○
	RT16.01W-14NPT	LT16.01W-14NPT	14	3.97	9.525	4.4	○	○
	RT16.01W-18NPT	LT16.01W-18NPT	18	3.97	9.525	4.4	○	○
	RT16.01W-27NPT	LT16.01W-27NPT	27	3.97	9.525	4.4	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order



R type



L type

	Type		Basic dimensions(mm)				Recommended coating grade	
	The right hand tools	The left hand tools	Pitch/mm (pitch/Inch)	S	IC	D1	YBG201	
							R	L
Internal thread	RT16.01N-8NPT	LT16.01N-8NPT	8	3.97	9.525	4.4	○	○
	RT16.01N-11.5NPT	LT16.01N-11.5NPT	11.5	3.97	9.525	4.4	○	○
	RT16.01N-14NPT	LT16.01N-14NPT	14	3.97	9.525	4.4	○	○
	RT16.01N-18NPT	LT16.01N-18NPT	18	3.97	9.525	4.4	○	○
	RT16.01N-27NPT	LT16.01N-27NPT	27	3.97	9.525	4.4	○	○

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

General turning

Forming and grooving

Threading

Thick threading inserts

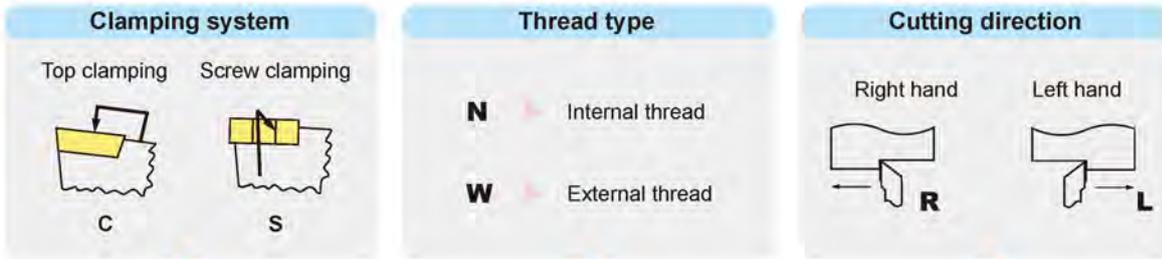
Thick threading insert tools code key

General turning

Feeding and grooving

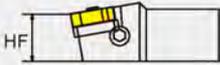
Threading

Tools for thick threading insert



S W R 20 20 K 16

Nose height (mm)



Note: 00 for round tool holder.
Only to integer, for example: h=8mm is labeled as 08.

Shank width (mm)



Note: Diameter for round tool holder
for example: b=8mm is labeled as 08.

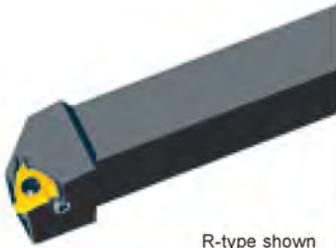
Tool length (mm)

Code	H	K	M	P	Q	R	S	T	U
Length	100	125	150	170	180	200	250	300	350

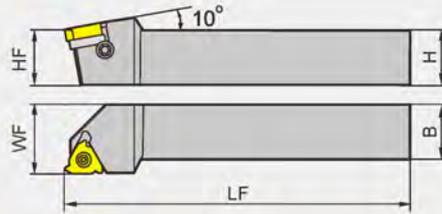
Insert size (mm)

Code	11	16	22
Triangle side length	11	16	22
Diameter of IC	6.35	9.525	12.70

External threading tools



R-type shown



Type	Stock	Basic dimensions(mm)					Applicable inserts	Inserts screw	Shim	Shim screw	Wrench						
		H	HF	B	LF	WF											
SWR	1616H16	▲	16	16	16	100	RT16.01W-□□□□	I60M3.5×12	MT16-□□M	SM4×8C	WT15IP						
	2020K16	▲	20	20	20	125						25					
	2525M16	▲	25	25	25	150						32					
	3225P16	▲	32	32	25	170						32					
	3232P16	▲	32	32	32	170	40	RT22.01W-□□□□	I60M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP					
	2525M22	▲	25	25	25	150	32										
	3225P22	▲	32	32	25	170	32										
	3232P22	▲	32	32	32	170	40										
4040S22	△	40	40	40	250	50	LT16.01W-□□□□	I60M3.5×12	MT16-□□M	SM4×8C	WT15IP						
SWL	1616H16	▲	16	16	16	100						20					
	2020K16	▲	20	20	20	125						25					
	2525M16	▲	25	25	25	150						32					
	3225P16	▲	32	32	25	170						32					
	3232P16	▲	32	32	32	170						40	LT22.01W-□□□□	I60M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP
	2525M22	▲	25	25	25	150						32					
	3225P22	▲	32	32	25	170						32					
	3232P22	▲	32	32	32	170	40										
4040S22	△	40	40	40	250	50											

▲Stock available △Make-to-order

General turning

Parting and grooving

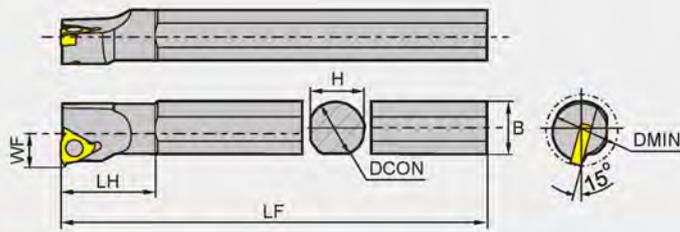
Threading

Tools for thick threading insert

Internal threading tools



R-type shown



Type	Stock	Basic dimensions(mm)								Applicable inserts	Inserts screw	Shim	Shim screw	Wrench				
		DCON	LF	B	DMIN	WF	H	LH										
SNR	0016K11	▲	16	125	16	12	10	15	20.9	RT11.01N-□□□□	I60 M2.5×6.5	---	---	WT07IP				
	0016M11	▲	16	150	15.5	16	10.5	15	25.9		I60 M3.5×8	---	---	WT15IP				
	0016M16	▲	16	150	15.5	20	12	15	27		RT16.01N-□□□□	I60 M3.5×12	MT16-□□M	SM4×8C	WT15IP			
	0020M16	▲	20	150	19	25	14	18	28.7	RT22.01N-□□□□		I60 M5×10	---	---	WT20IP			
	0020Q16	▲	20	180	19	25	14	18	34			I60 M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP			
	0025M16	▲	25	150	24	32	17	23	28.8			LT16.01N-□□□□	I60 M3.5×12	MT16-□□M	SM4×8C	WT15IP		
	0032R16	▲	32	200	31	40	22	30	30.9				LT22.01N-□□□□	I60 M5×10	---	---	WT20IP	
	0032S16	▲	32	250	31	40	22	30	30.9					I60 M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP	
	0040T16	▲	40	300	38.5	50	27	37	31.5					LT16.01N-□□□□	I60 M3.5×8	---	---	WT15IP
	0050U16	▲	50	350	49.5	63	35	49	40.2	LT11.01N-□□□□					I60 M2.5×6.5	---	---	WT07IP
	0020Q22	▲	20	180	21.5	25	15	18	35			LT16.01N-□□□□	I60 M3.5×12		MT16-□□M	SM4×8C	WT15IP	
	0025R22	▲	25	200	24	32	19	23	39		LT22.01N-□□□□		I60 M5×10		---	---	WT20IP	
	0032S22	▲	32	250	31	40	22	30	36.4				I60 M5×17		MT22-□□M	SM4×8C	WT15IP WT20IP	
	0040T22	▲	40	300	38.5	50	27	37	37.2				LT22.01N-□□□□	I60 M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP	
	0050U22	▲	50	350	48.5	63	35	47	42.6		SNL	I60 M2.5×6.5		---	---	WT07IP		
0016M11	▲	16	150	15.5	16	10.5	15	25.9	LT16.01N-□□□□			I60 M3.5×8		---	---	WT15IP		
0016M16	▲	16	150	15.5	20	12	15	27				LT16.01N-□□□□		I60 M3.5×12	MT16-□□M	SM4×8C	WT15IP	
0020M16	▲	20	150	19	25	14	18	28.7						LT22.01N-□□□□	I60 M5×10	---	---	WT20IP
0020Q16	▲	20	180	19	25	14	18	34	I60 M5×17				MT22-□□M		SM4×8C	WT15IP WT20IP		
0025M16	▲	25	150	24	32	17	23	28.8	LT11.01N-□□□□	I60 M2.5×6.5			---		---	WT07IP		
0032R16	▲	32	200	31	40	22	30	30.9		LT16.01N-□□□□			I60 M3.5×12		MT16-□□M	SM4×8C	WT15IP	
0032S16	▲	32	250	31	40	22	30	30.9					LT22.01N-□□□□		I60 M5×10	---	---	WT20IP
0040T16	▲	40	300	38.5	50	27	37	31.5							I60 M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP
0050U16	▲	50	350	49.5	63	35	49	40.2						LT22.01N-□□□□	I60 M5×17	MT22-□□M	SM4×8C	WT15IP WT20IP
0020Q22	▲	20	180	21.5	25	15	18	35	LT11.01N-□□□□	I60 M2.5×6.5			---		---	WT07IP		
0025R22	▲	25	200	24	32	19	23	39		LT16.01N-□□□□		I60 M3.5×12	MT16-□□M		SM4×8C	WT15IP		
0032S22	▲	32	250	31	40	22	30	36.4				LT22.01N-□□□□	I60 M5×10		---	---	WT20IP	
0040T22	▲	40	300	38.5	50	27	37	37.2					I60 M5×17		MT22-□□M	SM4×8C	WT15IP WT20IP	
0050U22	▲	50	350	48.5	63	35	47	42.6										

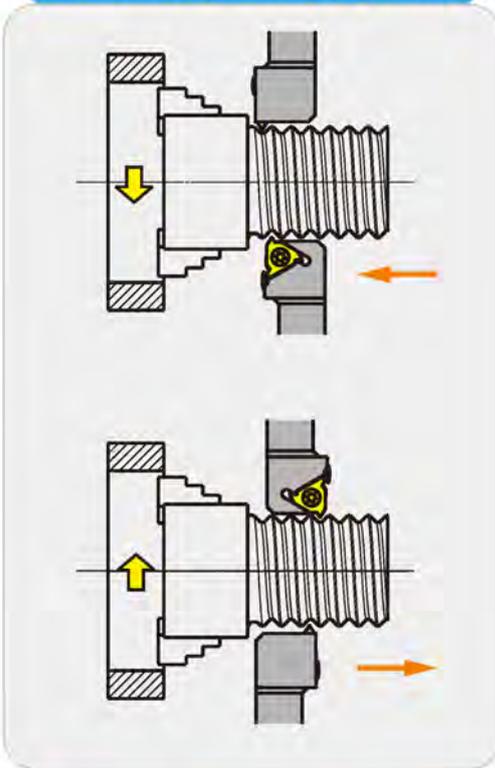
▲Stock available △Make-to-order

Please follow the steps to get the best threading result:

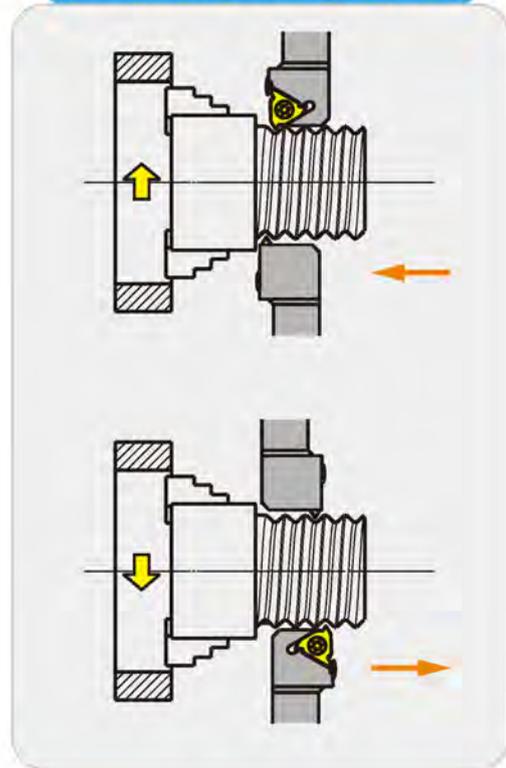
- 1 Select proper thread machining method.
- 2 Define helical angle and select shim.
- 3 Select proper insert and tool holder size.
- 4 By checking reference table of standard threading programs, select feasible cutting parameters.
- 5 Select feed way.

Machining method of threading tools

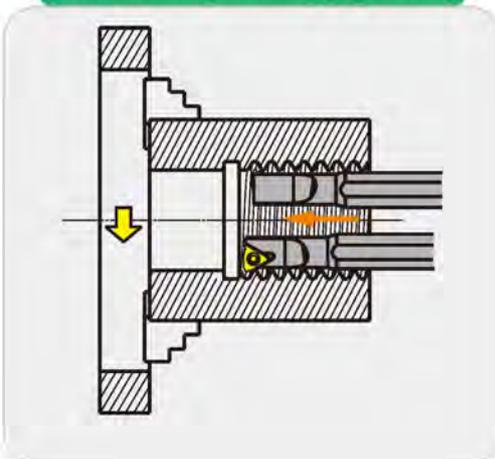
External threading machining (Right thread)



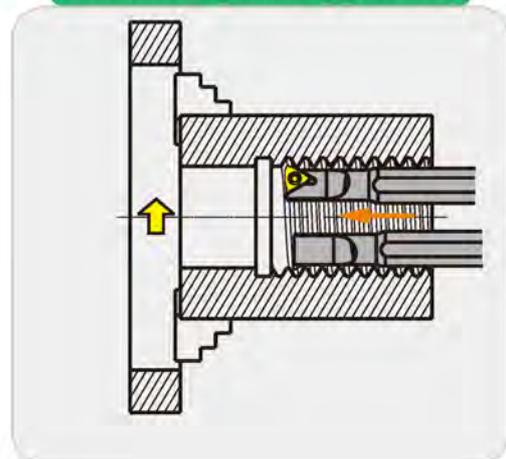
External threading machining (Left thread)



Internal threading machining (Right thread)



Internal threading machining (Left thread)



General turning

Forming limit grooving

Threading

Application information for threading

Decide helical angle and select shim

The clearance angle of threading inserts is actually along the edge (flank). This has significant effect on heat diffusion, spread of abrasion as well as tool life, security and pitch quality. The clearance angle of threading pitch on clearance face is determined by thread helical angle. These two angles are similar to each other to some extent. If inclined angle of insert is different from the helical angle, then the clearance angle won't be the same either.

The helical angle of pitch has to be the same with the inclined angle of insert to prevent over wearing on the clearance face which could affect tool life. the helical angle is calculated as below:

$$e = \arctan \frac{P}{d_2 \times \pi}$$

P= Pitch

d₂= pitch diameter

The most common inclined angle is 1°.

MT standard shim and its inclined angle is also 1°.

Calculation of clearance angle:

Clearance angle is calculated as below:

$$\beta = \arctan (\tan \theta \times \tan \alpha)$$

2θ=Thread profile angle

α=The rake angle of external standard threading tools is 10°; the rake angle of internal standard threading tools is 15°.

The shim has to be changed when helical angle of thread is ≤ clearance angle of tool, which could cause intervene on insert flank.

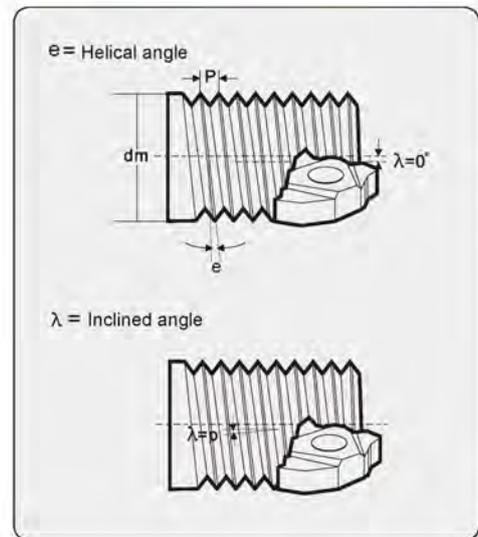
Please change the shim to adjust the difference between helical angle of thread and inclined angle of shim to be within 2°~0°.

For example: when P=1.5, d₂=24mm, helical angle 1.14°-(2°~0°)=inclined angle (-0.86°~1.14°) it is feasible to use standard shim 1°.

Shim specification table is as follows:

Screw pitch range	Insert dimensions	Inclined angle	Shim
0.5-3.0	16	0	MT16-00MN
		1	MT16-01MN
		2	MT16-02MN
		3	MT16-03MN
3.5-6.0	22	0	MT22-00MN
		1	MT22-01MN
		2	MT22-02MN
		3	MT22-03MN

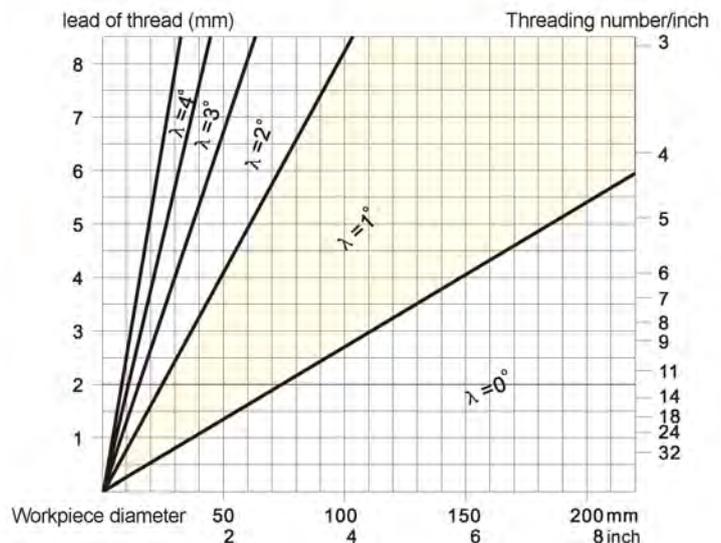
Note: the standard angle of shim for our threading tools is 1°. ((MT16-01MN or MT22-01MN))



Please refer to the table below for actual value:

Thread profile angle 2θ	β	
	External thread	Internal thread
60°	5.8°	8.79°
55°	5.24°	7.94°
30°	2.7°	4.1°
29°	2.6°	3.96°

Select shim:





Select proper inserts and size of tool holder (Please refer to detailed table of threading tools and inserts)

Parameter table for threading program under different standards

■ Table of recommended in-feed for metric ISO external threading

Screw pitch (mm)	0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6	
Total in-feed (mm)	0.38	0.53	0.68	0.85	1.02	1.16	1.33	1.67	1.98	2.3	2.61	2.93	3.25	3.56	3.88	
Number of passes	4	4	5	6	7	8	9	11	12	13	14	14	15	16	17	
Sequence of threading tool pass	Radial feed/pass units: mm															
1	0.12	0.18	0.2	0.2	0.23	0.24	0.26	0.26	0.26	0.3	0.33	0.35	0.38	0.4	0.4	
2	0.1	0.15	0.15	0.18	0.19	0.2	0.22	0.23	0.24	0.28	0.3	0.32	0.35	0.38	0.38	
3	0.09	0.12	0.14	0.15	0.17	0.18	0.18	0.21	0.22	0.25	0.28	0.3	0.32	0.35	0.36	
4	0.07	0.08	0.11	0.13	0.13	0.14	0.15	0.18	0.2	0.22	0.25	0.28	0.3	0.32	0.34	
5			0.08	0.11	0.12	0.12	0.13	0.15	0.18	0.2	0.22	0.26	0.28	0.3	0.32	
6				0.08	0.1	0.1	0.12	0.12	0.17	0.2	0.2	0.25	0.25	0.28	0.3	
7					0.08	0.1	0.1	0.12	0.16	0.18	0.18	0.22	0.22	0.25	0.28	
8						0.08	0.09	0.12	0.15	0.15	0.18	0.2	0.2	0.22	0.25	
9							0.08	0.1	0.12	0.12	0.15	0.18	0.2	0.2	0.22	
10								0.1	0.1	0.12	0.12	0.15	0.18	0.18	0.2	
11									0.08	0.1	0.1	0.12	0.12	0.15	0.18	
12										0.08	0.1	0.1	0.12	0.12	0.15	
13											0.08	0.1	0.1	0.12	0.12	
14												0.08	0.08	0.1	0.12	
15														0.08	0.1	
16															0.08	
17																0.08

General turning

Forming and grooving

Threading

Application information for threading



■ Table of recommended in-feed for metric ISO internal threading

Screw pitch (mm)	0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6
Total in-feed (mm)	0.35	0.48	0.66	0.83	0.97	1.14	1.27	1.58	1.8	2.15	2.44	2.73	3.02	3.31	3.6
Number of passes	4	4	5	6	7	8	9	11	12	13	14	14	15	16	17
Sequence of threading tool pass	Radial feed/pass units: mm														
1	0.11	0.15	0.18	0.2	0.22	0.22	0.24	0.25	0.25	0.26	0.26	0.28	0.28	0.3	0.3
2	0.09	0.13	0.15	0.18	0.18	0.18	0.2	0.22	0.23	0.25	0.25	0.26	0.28	0.3	0.3
3	0.08	0.12	0.14	0.15	0.16	0.16	0.18	0.2	0.2	0.23	0.24	0.25	0.26	0.28	0.28
4	0.07	0.08	0.11	0.12	0.13	0.15	0.15	0.18	0.18	0.21	0.22	0.25	0.26	0.28	0.28
5			0.08	0.1	0.11	0.13	0.12	0.15	0.16	0.2	0.2	0.24	0.25	0.26	0.26
6				0.08	0.09	0.12	0.12	0.12	0.15	0.18	0.2	0.22	0.23	0.25	0.25
7					0.08	0.1	0.1	0.12	0.15	0.16	0.18	0.2	0.21	0.23	0.25
8						0.08	0.08	0.1	0.12	0.14	0.18	0.2	0.2	0.23	0.23
9							0.08	0.1	0.1	0.12	0.16	0.18	0.2	0.2	0.23
10								0.07	0.1	0.12	0.15	0.18	0.18	0.2	0.21
11									0.07	0.08	0.1	0.12	0.15	0.18	0.18
12										0.08	0.1	0.1	0.13	0.15	0.15
13											0.08	0.1	0.11	0.15	0.15
14												0.08	0.08	0.11	0.12
15														0.08	0.1
16															0.08
17															

General turning

Facing and grooving

Threading

Application information for threading



■ Table of recommended in-feed for American unified standard external threading

Screw pitch (mm)	24	20	18	16	14	12	10	8
Total in-feed (mm)	0.72	0.85	0.92	1.06	1.2	1.39	1.67	2.07
Number of passes	5	6	6	7	8	9	10	12
Sequence of threading tool pass	Radial feed/pass units: mm							
1	0.2	0.2	0.22	0.23	0.24	0.24	0.25	0.25
2	0.18	0.18	0.2	0.2	0.21	0.22	0.23	0.23
3	0.15	0.16	0.16	0.18	0.18	0.2	0.21	0.23
4	0.11	0.13	0.14	0.15	0.15	0.18	0.2	0.2
5	0.08	0.1	0.12	0.12	0.13	0.15	0.18	0.2
6		0.08	0.08	0.1	0.11	0.13	0.15	0.18
7				0.08	0.1	0.11	0.15	0.18
8					0.08	0.08	0.12	0.15
9						0.08	0.1	0.15
10							0.08	0.12
11								0.1
12								0.08

General turning

Forming and grooving

Threading

Application information for threading



■ Table of recommended in-feed for American unified standard internal threading

Screw pitch	24	20	18	16	14	12	10	8
Total in-feed (mm)	0.71	0.83	0.92	1.03	1.16	1.29	1.53	1.9
Number of passes	5	6	6	7	8	9	10	12
Sequence of threading tool pass	Radial feed/pass units: mm							
1	0.19	0.2	0.22	0.23	0.24	0.24	0.25	0.25
2	0.17	0.18	0.2	0.2	0.2	0.2	0.23	0.23
3	0.15	0.15	0.17	0.17	0.18	0.18	0.2	0.23
4	0.12	0.12	0.14	0.14	0.15	0.15	0.18	0.2
5	0.08	0.1	0.11	0.12	0.12	0.12	0.15	0.18
6		0.08	0.08	0.1	0.1	0.12	0.13	0.15
7				0.07	0.1	0.1	0.11	0.15
8					0.07	0.1	0.11	0.12
9						0.08	0.1	0.12
10							0.07	0.1
11								0.1
12								0.07

General turning

Facing and grooving

Threading

Application information for threading



■ Table of recommended in-feed for Whitworth internal and external threading

Screw pitch	28	20	19	18	16	14	12	11	10	9	8
Total in-feed (mm)	0.66	0.88	0.91	0.99	1.09	1.25	1.42	1.58	1.71	1.9	2.13
Number of passes	5	6	6	7	8	8	8	9	10	11	12
Order to follow in threading operation	Radial feed/pass units: mm										
1	0.18	0.2	0.2	0.2	0.2	0.22	0.23	0.24	0.24	0.23	0.23
2	0.15	0.18	0.18	0.18	0.18	0.2	0.21	0.22	0.22	0.22	0.22
3	0.14	0.16	0.17	0.15	0.16	0.2	0.21	0.2	0.2	0.21	0.22
4	0.11	0.14	0.15	0.15	0.15	0.18	0.2	0.2	0.2	0.2	0.21
5	0.08	0.12	0.13	0.13	0.12	0.15	0.2	0.18	0.18	0.2	0.2
6		0.08	0.08	0.1	0.12	0.12	0.16	0.18	0.16	0.18	0.2
7				0.08	0.08	0.1	0.12	0.15	0.15	0.15	0.18
8					0.08	0.08	0.09	0.12	0.15	0.15	0.16
9								0.09	0.12	0.13	0.15
10									0.09	0.13	0.15
11										0.1	0.12
12											0.09

General turning

Forming and grooving

Threading

Application information for threading



■ Table of recommended in-feed for NPT internal and external threading

Screw pitch	27	18	14	11.5	8
Total in-feed (mm)	0.77	1.14	1.46	1.77	2.54
Number of passes	6	8	10	12	14
Sequence of threading tool pass	Radial feed/pass units: mm				
1	0.19	0.22	0.24	0.24	0.24
2	0.16	0.2	0.22	0.22	0.24
3	0.14	0.18	0.2	0.2	0.23
4	0.11	0.15	0.15	0.18	0.22
5	0.09	0.12	0.15	0.15	0.22
6	0.08	0.1	0.12	0.15	0.2
7		0.1	0.12	0.13	0.2
8		0.07	0.1	0.13	0.18
9			0.08	0.11	0.16
10			0.08	0.1	0.16
11				0.08	0.15
12				0.08	0.12
13					0.12
14					0.1

■ Table of recommended in-feed for BSPT internal and external threading with wiper edge

Screw pitch	28	19	14	11
Total in-feed (mm)	0.66	0.94	1.25	1.56
Number of passes	5	6	8	10
Order to follow in threading operation	Radial feed/pcs units: mm			
1	0.18	0.22	0.22	0.22
2	0.15	0.2	0.2	0.2
3	0.14	0.18	0.18	0.2
4	0.11	0.15	0.16	0.18
5	0.08	0.11	0.15	0.15
6		0.08	0.15	0.15
7			0.11	0.13
8			0.08	0.13
9				0.11
10				0.09

General turning

Facing and grooving

Threading

Application information for threading



Table of recommended cutting parameters

ISO	Material		Unit cutting force Kc0.4 N/mm ²	Hardness HB	Grade	
					YBG201 YBG202 YBG203 YBG205	
Cutting speed(m/min)						
P	Carbon steel	C=0.15%	1900	125	150-175	
		C=0.35%	2100	150	140-155	
		C=0.60%	2250	200	130-145	
	Alloy steel	Anneal	2100	180	110-130	
		Hardened	2600	275	80-100	
		Hardened	2700	300	70-90	
	High alloy steel	Hardened	2850	350	60-80	
		Anneal	2600	200	90-115	
	Cast steel	Hardened	3900	325	70-90	
		Non-alloy	2000	180	180-210	
low alloy		2500	200	90-115		
High alloy		2700	225	90-115		
M	Stainless steel	Martensite steel 12%Mn	3600	250	40-50	
		Austenite	2450	180	110-130	
K	Malleable cast iron	Martensite/Ferrite	2300	200	130-170	
		Ferrite	1100	130	110-140	
	Gray cast iron	Pearlite	1100	230	85-105	
		Low tensile-strength	1100	180	110-140	
Nodular cast iron	High tensile-strength	1500	260	90-115		
	Ferrite	1100	160	110-130		
N	Al alloy	Pearlite	1800	250	80-100	
		Non-aging treatment	500	60	1300-1450	
	Cast aluminum alloy	Aging treatment	800	100	450-500	
		Non-aging treatment	750	75	430-470	
S	Super alloy	Aging treatment	900	90	250-290	
		Iron base	Anneal	3000	200	35-50
			Aging	3050	280	25-35
	Ni- or Co-base	Anneal	3500	250	15-25	
		Aging	4150	350	10-20	
H	Hardened steel	Casting	4150	320	10-15	
		Hardened steel	4500	HRC55	40-50	

Note: •The values in the above table are range values. High values in the range could be considered in actual cutting. When trying new cutting speed, please check the cutting edge condition before operation.
 •In stainless steel threading, high cutting speed should be used to prevent built-up edge.
 •The cutting parameters should be reduced when cutting small pitch thread and when using tools with small nose radius.
 •When cutting thread by tools with small nose radius, such as NPT standard thread, it is advisable to use tools with big nose radius first to rough, so as to improve the life of tools with small nose radius.

Turning
turning

Turning
turning

Turning
turning

Turning
turning

In-feed way of threading tools

Radial in-feed



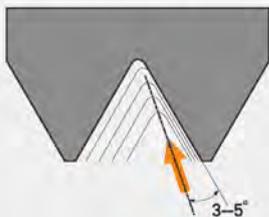
- Easy operating, high general.
- V-shape chip caused by long chip steel workpiece will produce big bend stress on cutting edge.
- It requires low cutting depth, sharp cutting edge and good tough material.
- Big quantity of heat when cutting ,V-shape chip is hard to control.
- Because the interface of cutting chips on the right and left side is long, so it is easy to cause vibration and make the cutting edge suffer more overloading.

Flank in-feed



- Cutting edge suffer small bend stress, stable estate, it is easy for chips formation in deep cutting depth.
- There are enough space to leave chips flow when flank in-feed.
- Big abrasion on right flank.

Modified flank in-feed



- Right Cutting Edge also engage on cutting depth to a certain extent, it can reduce the abrasion on right side of clearance face.
- Cutting edge suffer small bend stress, stable estate, it is easy for chips formation in deep cutting depth.
- Good Cutting Performance.

Alternate flank in-feed



- Cutting edge trade off when machining, equality abrasion on left and right side of clearance face on cutting edge, it can improve the life of tools.
- Chips are flowing from both of right and left side, good chips flowing.
- Recommend using in big screw-pitch thread cutting.



Recommend adopting flank in-feed or alternate flank in-feed under allowable range of machining equipment or programmer, it can eliminate the machining vibration effectively, and it has enough space discharge the chips between pitch. Cutting edge suffer a small stress, machining stable, it likes the general turning process when machining thread, good chip control without chip tangling.



Common problems in threading and solutions

Problem	Cause	Solutions
Wear on clearance face	Cutting speed too high.	Reduce cutting speed.
	Low cutting depth, friction and wear.	Reduce frequency of feed and friction of cutting edge.
	Inserts are over the center line.	Adopt correct center height.
Asymmetric wear on right and left cutting edge	The inclined angle of insert is different from the helical angle of thread.	Change to proper shim to get correct inclined angle.
	Flank in-feed is not correct.	Change the way of flank in-feed.
Breakage	Cutting speed too low.	Increase cutting speed.
	Cutting force too high.	Increase frequency of feed and reduce Max in-feed.
	Unstable clamping.	Check if workpiece vibrates. Reduce overhang of tool. Verify clamping of workpiece and tool.
	Chip tangling.	Increase the pressure of cooling liquid to blow away chips.
Plastic deformation	High cutting speed, high temperature on cutting area.	Reduce cutting speed. Increase feed frequency and reduce Max cutting depth.
	Insufficient cooling fluid.	Increase cooling fluid supply.
Low thread surface quality	Cutting speed too low. The insert is over the center line. Chips are not under control.	Increase cutting speed. Adjust centre height. Change the operation way of tools to well control chips.
Incorrect profile	Incorrect center height.	Adjust centre height.
	Pitch on machine is not correct.	Adjust machine.
Shallow profile	Cutting speed set wrong.	Adjust cutting depth.
Surface damage	Chip involved in or touched the machined surface.	Change to flank in-feed to control chip flow direction.
Built-up edge	Temperature of cutting edge is too low. Usually occur when machining stainless steel and low carbon steel.	Increase cutting speed as well as pressure and concentration of cooling fluid. Choose inserts with good toughness.
Crack on surface	Cutting force too high.	Reduce the cutting depth of each feed.
Vibration	Incorrect clamping of workpiece or tool.	Verify clamping of workpiece and tool. Minimize overhang of tool.
	Incorrect cutting parameters.	Increase cutting speed or reduce it substantially.
	Incorrect tool clamping.	Adjust center height.

General turning

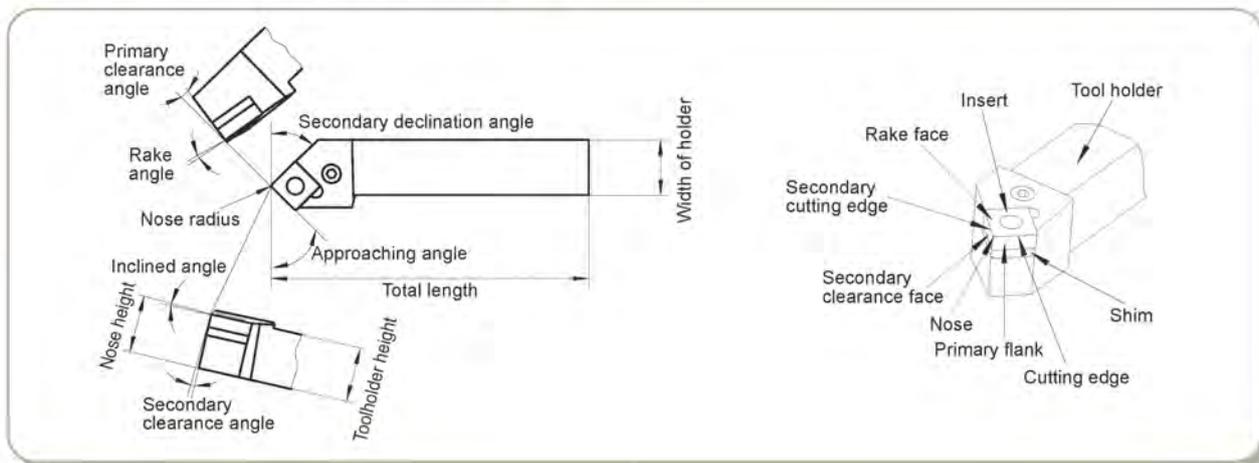
Facing and chamfering

Threading

Application information for threading

The functions of each part of turning tools

1 The names of each part of turning tools



2 Effects of rake angle

Larger rake angle makes cutting edge sharper, reduces resistant forces of chip flow, diminishes friction and prevent deformation, leading to smaller cutting forces and cutting power, lower cutting temperature, less abrasion and higher surface quality. However, too large rake angle would reduce the rigidity and strength of tool. Heat can't be diffused easily. Serious breakage and abrasion on tool would occur, reducing tool life. Please choose rake angle according to machining conditions.

Value selection	Situations
Small rake angle	<ul style="list-style-type: none"> ● When machining brittle and hard materials ● When roughing and intermittent cutting
Big rake angle	<ul style="list-style-type: none"> ● When machining plastic or soft materials ● When finishing

3 Effects of clearance angle

The main function of clearance angle is to reduce the friction between the clearance face of tool and the surface of workpiece. When the rake angle is fixed, larger clearance angle can increase the sharpness of cutting edge, reduce cutting forces and friction, and then achieve higher surface quality. However, if clearance angle is too large, the strength of cutting edge would decrease. Also, heat can't be diffused easily and serious abrasion would occur, reducing tool life.

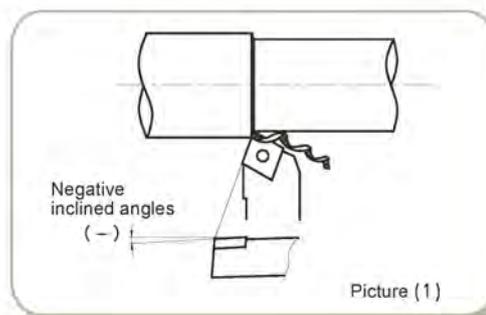
The principle of choosing clearance angle: Choose small clearance angle if friction is not serious.

Value Selection	Situations
Small clearance angle	<ul style="list-style-type: none"> ● In order to increase nose strength when roughing ● When machining brittle and hard materials
Large clearance angle	<ul style="list-style-type: none"> ● In order to reduce friction when finishing ● When machining materials easy to be hardened

4 Effects of inclined angle

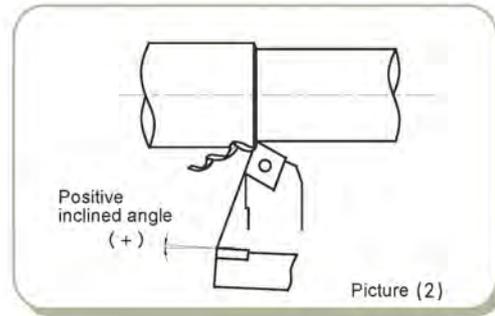
Positive or negative inclined angle determines the direction of chip flow, and also affects the strength and impact resistance of insert nose.

◆ As diagram (1) shows, when the inclined angle is negative, namely nose is in the lowest point as apposed to the bottom of tool, chips flow to the machined surface of workpiece.



◆ As diagram (2) shows, when inclined angle is positive, namely the nose is in the highest point as apposed to the bottom of the tool, chips flow to the areas of workpiece surface that haven't been machined.

◆ The change of inclined angle also affects insert nose strength and impact resistance. When the inclined angle is negative, the nose is in the lowest point of cutting edge. When the cutting edge enters the workpiece, the contacting point is on the cutting edge or rake face, protecting the nose from impact and increase the strength of the nose. Normally, negative inclined angle should be chosen for tools with big rake angle. This can not only increase nose strength, but also prevent the impact of entry.

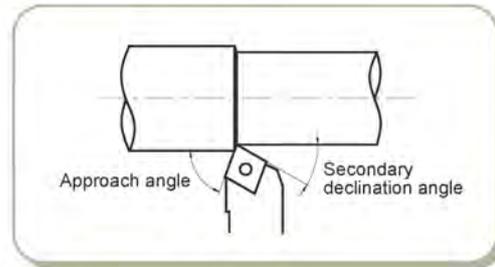


Picture (2)

5 Effects of approach angle

Reduced approaching angle increases the strength of tools and enable heat to diffuse easily, improving surface quality. This is because when the approach angle is small, cutting edge width is large, and then the unit width of cutting edge bears less cutting force. Meanwhile, tool life can be improved.

Normally, select 90° approach angle for turning of slender and step shaft; select 45° approach angle for external turning, end surface machining and chamfering. When approach angle is larger, radial force is reduced, cutting is stable, cutting thickness is increased, and chip breaking is excellent.



Value selection	Situations
Small approach angle	For those materials with high intensity, high hardness and hardened layer on the surface
Big approach angle	When rigidity of the machine is not enough

6 Effects of secondary declination angle

Minor angle is the main angle that can affect surface quality, and it can also affect tool strength. If the approach angle is too small, the friction between the secondary flank and machined surface of workpiece will increase, causing vibration.

The principle of selecting minor angle: Select small minor angle when roughing or when the friction is unaffected and there is no vibration. Select large minor angle when finishing.

7 Nose radius

Nose radius significantly affects nose strength and surface quality.

Large nose radius means higher cutting edge strength, and the abrasion on the rake face and clearance face can be reduced to some extent. However, if the nose radius is too large, radial force will increase, and vibration is easy to occur, affecting machining precision and surface quality.

Value selection	Situations
Small nose radius	<ul style="list-style-type: none"> ● Finishing at small cutting depth ● Machining parts such as slender shaft ● When the rigidity of the machine is not enough
Large nose radius	<ul style="list-style-type: none"> ● When roughing ● When machining hard materials (intermittent cutting) ● When the rigidity of the machine is not enough

Element turning

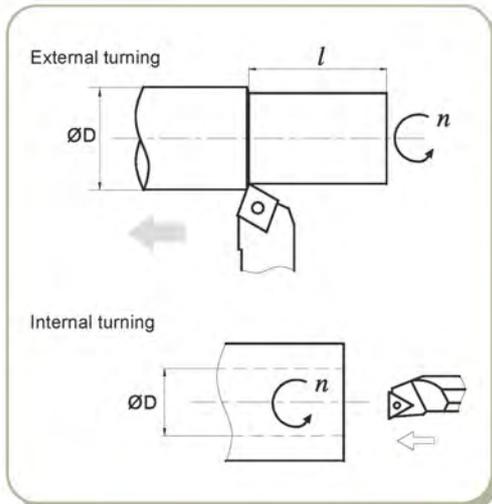
Turning and grooving

Threading

General technical information for turning

Calculation method of turning parameters

1 Calculation of cutting speed



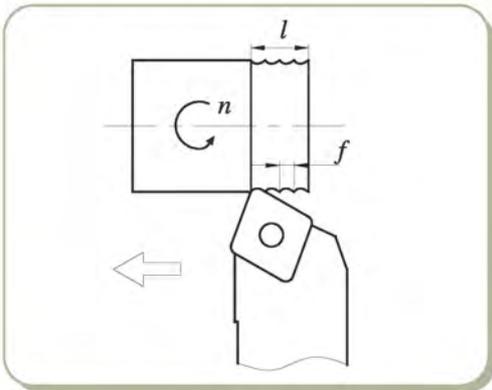
$$V_c = \frac{\pi \times D \times n}{1000} \text{ (m/min)}$$

In the formula: V_c : Cutting speed (m/min)
 n : Rotating speed of spindle (rev/min)
 D : Diameter of workpiece (mm)

For example: When the rotating speed is 280rev/min and the diameter of workpiece is 150mm, the cutting speed should be:

$$V_c = \frac{\pi \times D \times n}{1000} \text{ (m/min)} = 132 \text{ (m/min)}$$

2 Calculation of feed rate

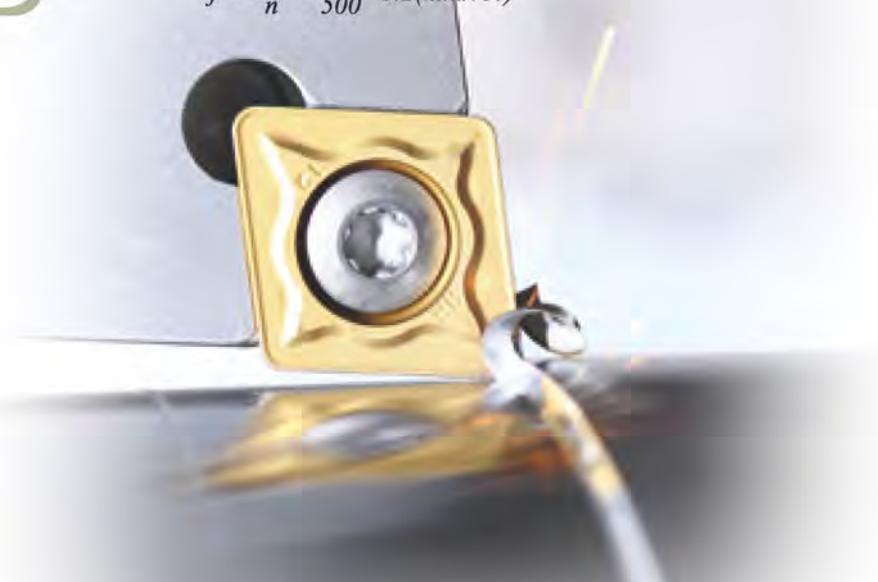


$$f = \frac{l}{n} \text{ (mm/rev)}$$

In the formula: f : Feed rate per rotation (mm/rev)
 l : Cutting length per minute (mm/min)
 n : Rotating speed of spindle (rev/min)

For example: When the rotating speed of main axle is 500rev/min, and the cutting length per minute is 100mm/min, the feed rate per rotation should be:

$$f = \frac{l}{n} = \frac{100}{500} = 0.2 \text{ (mm/rev)}$$



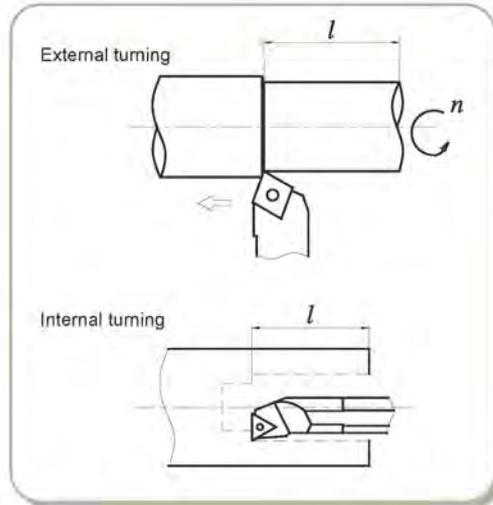
3 Cutting time calculation of external and internal turning

$$T = \frac{l}{f \times n} \text{ (min)}$$

In the formula: T: Cutting time (min)
 l: Length of machined areas (mm)
 f: Feed rate (mm/rev)
 n: Rotating speed of main axle (rev/min)

For example: When the rotating speed of main axle is 250rev/min, and the feed rate is 0.2mm/rev, the time needed for a cutting length of 150mm should be:

$$T = \frac{l}{f \times n} = \frac{150}{0.2 \times 250} = 3 \text{ (min)}$$

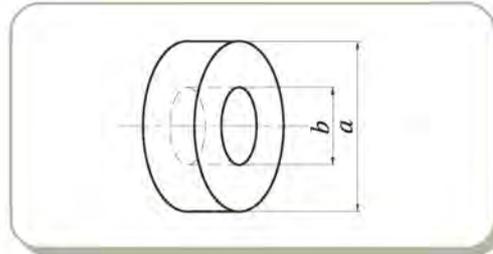


4 Time calculation for end surface turning (constant linear speed)

$$T = \frac{\pi \times (a^2 - b^2)}{4000 \times V_c \times f} \text{ (min)}$$

In the formula: T: Cutting time (min)
 V_c: Cutting speed (m/min)
 f: Feed rate (mm/rev)

For end surface without hole, b=0, the formula is still valid.



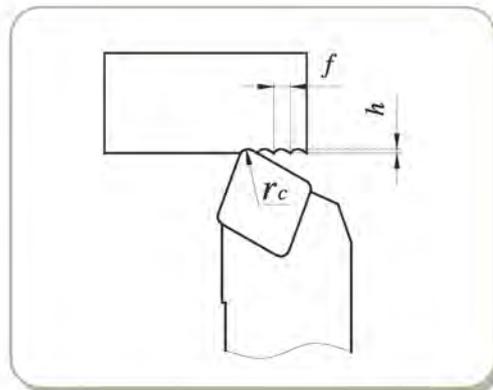
5 Theoretical value calculation of machined surface roughness

$$R = \frac{f^2}{8r_c} \times 1000 \text{ (}\mu\text{m)}$$

In the formula: R: Theoretical roughness value of machined surface
 f: Feed rate (mm/rev)
 r_c: Nose radius (mm)

For example: When the feed rate is 0.2mm/rev, and the nose radius is 0.4mm, the theoretical roughness value of machined surface should be:

$$R = \frac{f^2}{8r_c} \times 1000 = \frac{0.2^2}{8 \times 0.4} \times 1000 = 12.5 \text{ (}\mu\text{m)}$$



General turning

Turning and grinding

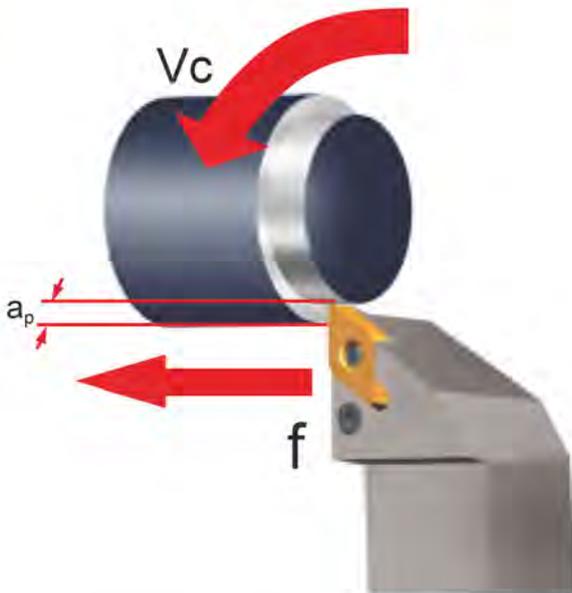
Threading

General technical information for turning

Effect of three main turning parameters on machining

Effects of three main parameters

Normally, short machining time, long tool life and high machining precision are expected in machining, so the material quality, hardness, and shape of the workpiece, and properties of machine should be fully considered, and then we can select suitable tools and adopt high-efficiency cutting parameters, namely three parameters.



Cutting speed (V_c)

When the workpiece is rotating on the machine, the number of its rotation per minute is defined as Rotating speed of main axle (n). Because of its rotation, the cutting speed measured on the contacting point of diameter is defined as linear speed, m/min. Normally, linear speed is considered to measure the effect of cutting speed on machining.

Effect of cutting speed

Cutting speed has significant effect on tool life. When the cutting speed is increased, cutting temperature will increase and tool life will be shortened. Cutting speed varies according to the different types and hardness of workpiece. The below conclusions are reached after many cutting experiments:

(1) Normally tool life would be reduced to half when the cutting speed is increased by 20%. Tool life would be 20% of the original life if the cutting speed is raised by 50%.

(2) Low speed (20-40m/min) cutting could easily cause vibration and shorten tool life.

Feed rate (f_n)

Feed rate is defined as the moving distance of tool after workpiece rotates for one circle, measured by mm/rotation.

Effect of feed rate

Feed rate is a key factor that determines surface quality. Meanwhile it also affect the range of chip forming and the thickness of chips during machining.

In term of the effect on tool life, small feed rate leads to serious abrasion on clearance face, greatly reducing tool life.

Cutting depth (a_p)

Cutting depth is defined as the difference between machined surface and unmachined surface, measured by mm. It is half the difference value between the original diameter and machined diameter.

Effect of cutting depth

Cutting depth should be determined by the machining allowance and shape of workpiece, power and rigidity of machine, and tool rigidity.

The change of cutting depth has little effect on tool life. If the cutting depth is too low, the cutting nose only scrapes the hardened layer on the workpiece surface, reducing tool life. When there is hardened oxide layer on workpiece surface, higher cutting depth should be adopted within the possible range of machine's power to avoid cutting nose just cutting the hardened layer of workpiece.



Comparison table for turning inserts chipbreaker

Comparison table for turning insert chipbreaker

Negative inserts

ISO	Machining range	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	SECO	MITSUBISHI	SUMITOMO	KENNAMETAL	DIJET	HITACHI	TUNGALOY	KYOCERA	VALANTTE	
P	For extra finishing		QF LC	HU	FA FX	FP5	FF1 FF2	PK※ FH, FY FP, FS	FB FA, FL	FF		FE	01※, TF, ZF 11	DP※, GP, PP, VF, XP XP-T, XF	F1	
	For finishing	DF XF	PF XF	HF	FG FM	MP3, FV5 NF3, NF4	MF2	LP, C SA, SH	FE, SU, LU, SX, SE	LF, FN	PF, UR UA, UT	BE, CE B, BH	NS, 27 TSF, AS, TQ	HQ, CQ PQ	F2(2B), F5(5C)	
	For finishing (Soft steel)	SF		HF	FC			SY					17	XQ, XS		
	For finishing (Wiper)		WL WF	HW	WS	NF	W-MF2	SW	LUW SEW	FW			AFW, ASW FW, SW	WF WP, WQ		
	For semi-finishing	DM PM XM	PM QM XM	HA HC HM	PC FT MT SM MP	MF3 MF5 MV5	MF3 M3 M5	MP MA MH	GU UG UX GE	P MN	PG UB	CT AB AY AE AH	NM, ZM TM, DM 37, AM 33, 38	PG, CJ, GS, PS HS, PT	F3, F4(8A), M2(2C), M3 M4, M5(5B), M6, M7, 55, M8	
	For semi-finishing (Wiper)		VMX VM		WT	NM	W-M6 W-M3 W-MF5	MW	GUW	MW RW				WE		
	For light roughing	LR(Single-side) DR(Double-side)	PR, HM XMR		RT	NM6, RP5 NM9, RP7	MR7 MR6	RP GH	MU, MX ME, UZ	RN RP	UD, GG	Y, RE	TH	RH, GT		
	For heavy roughing	HDR HPR	QR PR HR MR	HR HH	RX, HD HY, HT RT, RH HZ, EH	NR6 NRF NRR	R5, R56 R4, R6 R7, PR9 R57, RR6 R8	HM, HL HZ, HX HV, HR	MP, HG HP, HU HW, HF	MR, RM RH	UC	TE, UE HX, HE H	TU, TRS TUS	PX	R3, R4, R6(9A) R7(9B), R9(9C)	

※ Periphery grinding type

Comparison table for turning inserts chipbreaker

Threading

Turning and grooving

General turning

Comparison table for turning inserts chipbreaker

Comparison table for turning insert chipbreaker

Negative inserts

ISO	Machining range	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	SECO	MITSUBISHI	SUMITOMO	KENNAMETAL	DIJET	HITACHI	TUNGALOY	KYOCERA	VALANTTE
M	For finishing	EF	MF	HA	SF	NF4, FM5	MF1	SH, LM	SU, EF	FP, LF*		MP, AB BH	SS	MQ GU	F1, F2(2B), F5(5C)
	For semi-finishing	EM	MM, QM XM, K	HS	ML, EM MM, VF	MM5 RM5 NM4	MF4	MS, ES GM, MM MA	EX, EG UP, GU HM	MP	SF, SG SZ	DE PV SE AH	SF, SA, SM, S	MS, MU SU, HU, ST, TK	F3, F4(8A), M2(2C), M3 M4, M5(5B), M6, M7, 55, M8
	For roughing	ER	MR	GS, HM	MT	NR4 NR5	M5, MR7 RR6	GH, HZ RM, HL	EM, MU MP	UP RP		AE	TH, SH		R3, R4, R6(9A) R7(9B), R9(9C)
K	For finishing	PM	KF			MK5	MF2, M3 MF5, M4	VA AH		FN		VA, AH	CF	KQ	F2(2B)
	For Semi-Finishing	PM	KM	Through chip-breaker, HM	MC	RK5 NM5	M5	V AE	UZ, GZ UX	RP, UN	PG	V, AE	CM	KG, C	M5(5B), M6, M8
	For roughing	Without chip-breaker	KR KRR	GR, HR GH	KT	RK7		RE			GG	RE		KH, GC	R3, R4, R7(9B)
S	For finishing	NF/NGF	SF SGF*		EA	NF4, NFT MS3	MF5, MF1 MF4	FJ*, LS MJ, MJ*	EF, SU*	FS, LF* MS			HRF	MQ	F5(5C), M2(2C)
	For semi-finishing	NM	NGF*, SM			NMT, NMS	M1	MS	EG, EX SU*, UP	NGP* UP, P		VI	HRM, SA HMM	SQ, MS MU, TK	M4, M5(5B), M7, 55
	For roughing	SNR	SR SMR		ET	NRS NRT	MR3 MR4	GJ RS	MU	RP				SG SX	

* Periphery grinding type



Comparison table for turning inserts chipbreaker

Comparison table for turning insert chipbreaker

Positive inserts

ISO	Machining range	ZCC.CT	SANDVIK	KORLOY	TaeguTec	WALTER	SECO	MITSUBISHI	SUMITOMO	KENNAMETAL	DIJET	HITACHI	TUNGALOY	KYOCERA	VALANTTE
P	For finishing	SF, HF XF	PF, UF XF	HFP	FA, FG FX	PF4 FP4	FF1 F1	FV, SV FP, LP	FP, LU SU, SK	11, UF LF, FP		JQ	PF, PSF PS, PSS	GP, XP VF, PP	PF4 JQ, JZ
	For finishing (Wiper)		WF			PF2* PF, PF5*	W-F1	SW	LUW SDW	FW				WP	
	For semi-finishing	HM, XM	UM, XM PM, PR XR	HMP C25	MT, PC	PS5 PM5 FP6	F2 MF2, M5	MV, MP	MU	MF, MP	FT	JE	PM 23, 24	HQ, XQ GK MF*	PM2 PM4
	For semi-finishing (Wiper)		WM		WT	PM	W-F2 W-M3	MW		MW					
M	For finishing	EF	MF	HFP		FM4	F1, F2	FM, LM	FC*, SI* LU, SU	MF		MP	PF, PSF PS, PSS	CF*, CK* GQ*, GF* MQ, SK	1A, 2A
	For semi-finishing	EM	MM	HMP C25		MM4 RM4		MM	MU	MP			PM	HQ GK	PM2 PM4
K	For semi-finishing	HM, HR without chip-breaker	KF KM KR	HMP C25		FK6	F1 M3, M5	MK Without chip-breaker	MU Without chip-breaker	Without chip-breaker			CM Without chip-breaker	Without chip-breaker*	PM2 PM4
	For finishing/ For semi-finishing	NGF						FS*, LS* FJ*, FS-P* LS-P*	SL* SL*	LF* HP*				MQ	PM2, 1A 2A
N	For general turning	LH	AL	TA, AK MA	FL	PM2, FN2 MN2	AL*	AZ*	AG	HP*	ALU ACB ASF		AL*	AH*	1L, 1A 2A

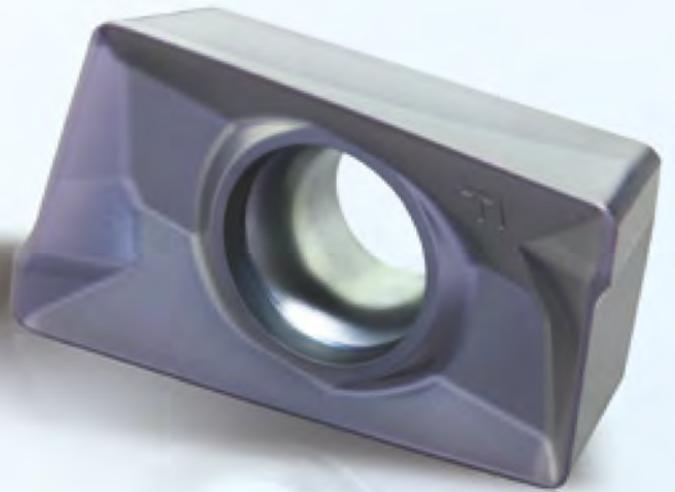
* Periphery grinding type

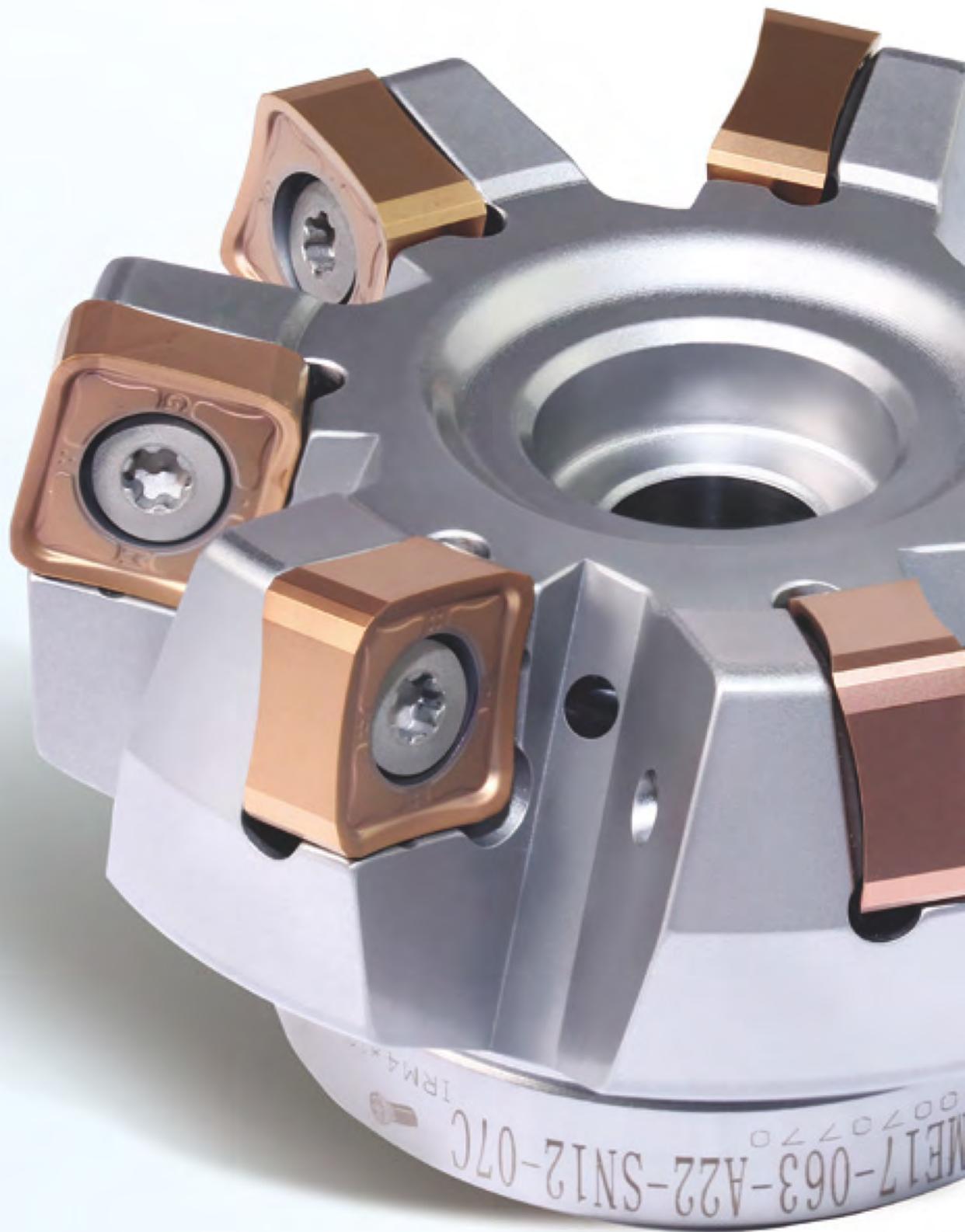
Comparison table for turning inserts chipbreaker

General turning

Turning and grooving

Threading





Milling Tools

Indexable milling tools

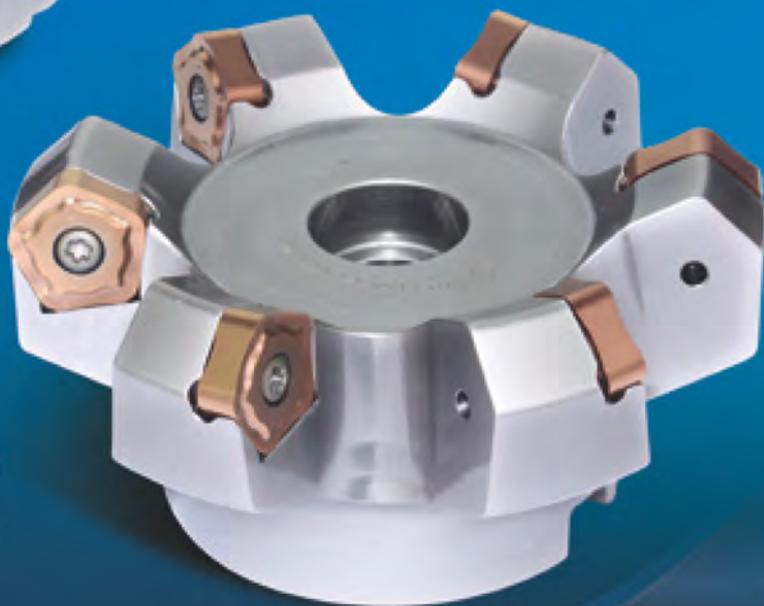
FMA 11 series

With Outstanding Economy and High Performance



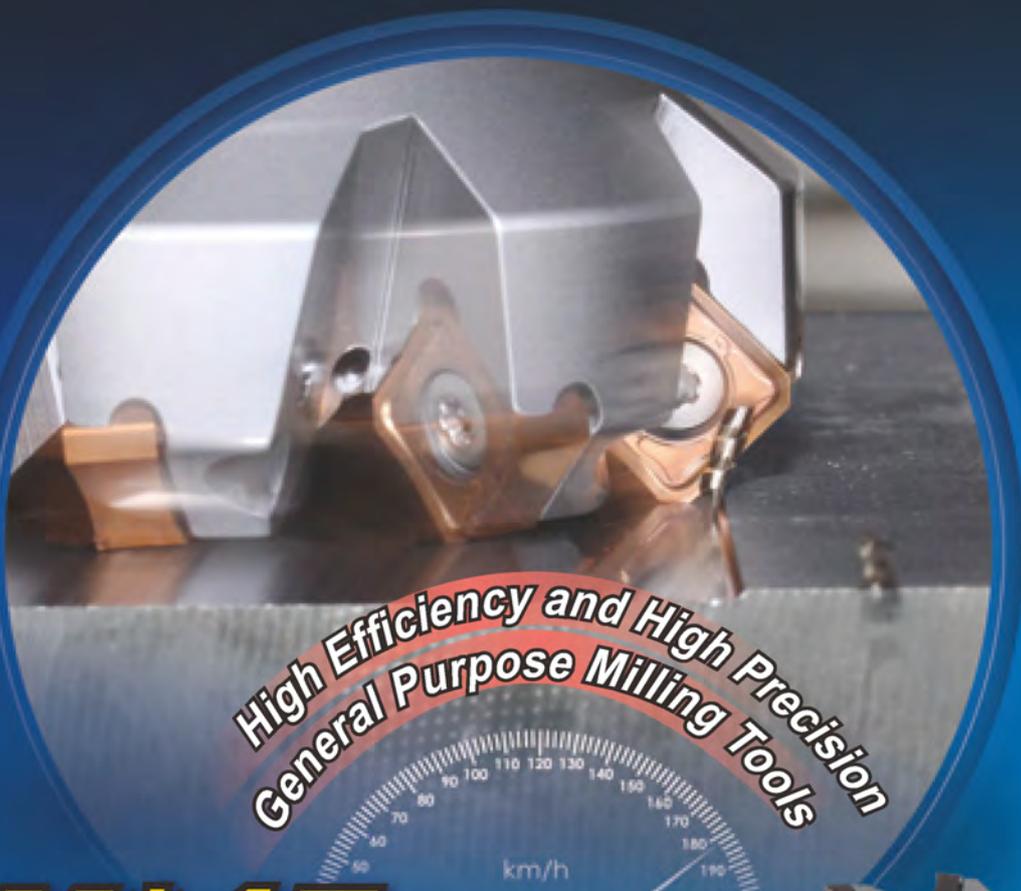
FMA12 series

High Performance Face Milling
with 16 Edges for Outstanding
Economy Milling



FMA14 series

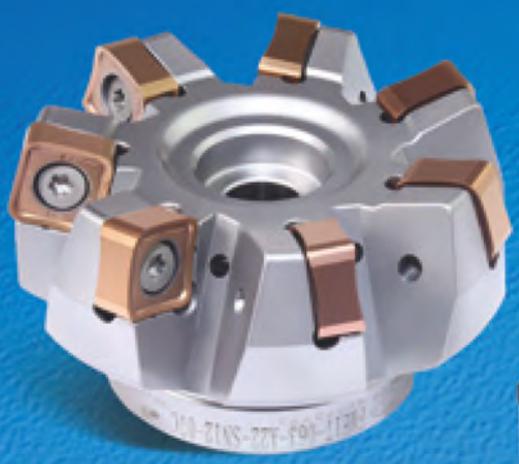




High Efficiency and High Precision
General Purpose Milling Tools



FM*17 series





***New Generation of the
Tangential Milling Tools***

EMP09 series



EMP13 Series
Achieve High-quality 90° Square
Shoulder Processing



Milling



Indexable Milling Tools ● B1-B276

Indexable milling tools B3-B229

Indexable milling inserts B230-B270

Technical information ● B271-B276

Solid Carbide End Mills ● B277-B680

Solid carbide end mills B277-B646

Technical information B647-B651

Interchangeable modular end mills ● B654-B680



New champion in milling **YBC302**
Black Diamond Series Grade



How to choose the right indexable milling tools

Classification of milling tools

According to types of machining operation

Applicable machining operations
For face milling, chamfering, shoulder milling etc.

Product series
Type of machining
Workpiece materials
Approach angle
Structure and coupling size

Face milling tools
FMA01

KAPR:45°

Selection of inserts

Good working condition Normal working condition Bad working condition

Steel Cast iron Non-ferrous metal High speed alloy Ti alloy

Insert shape	Type	Basic dimensions(mm)						CVD Coating					PVD Coating			Camp	Dimensional class			
		L	IC	IS	D1	RCH	R	VC020	VC025	VC030	VC035	VC040	VC045	VC050	VC055			VC060	VC065	VC070
SEET12T3-DF	SEET12T3-DF	13.4	13.4	3.97	4.1	2.55	-	★												
	SEET12T3-CF	13.4	13.4	3.97	4.1	2.55	-		★											
SEET12T3-EF	SEET12T3-EF	13.4	13.4	3.97	4.1	2.55	-			★										
	SEET12T3-DM	13.4	13.4	3.97	4.1	2.55	-	★												
SEET12T3-DM	SEET12T3-DM	13.4	13.4	3.97	4.1	2.55	-				★									
	SEET12T3-EM	13.4	13.4	3.97	4.1	2.55	-					★								
SEET12T3-EM	SEET12T3-EM	13.4	13.4	3.97	4.1	2.55	-						★							
	SEET12T3-DR	13.4	13.4	3.97	4.1	2.55	-	★												
SEET12T3-DR	SEET12T3-DR	13.4	13.4	3.97	4.1	2.55	-							★						
	SEET12T3-LH	13.4	13.4	3.97	4.1	2.55	-													★
SEET12T3-W	SEET12T3-W	17.82	13.4	3.97	4.1	9.48	500	★	★											
	SEET12T3-W	24.78	18.0	6.1	5.5	11.0	500			★										

★ Recommended grade (always stock available) ● Available grade (always stock available) □ Make-to-order

Specification of tools

Type	Stock		Basic dimensions(mm)						Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DOON	DAL	APMM				
FMA01 (Case pitch)											
-050-A22-SE12-04	▲	△	50	81	22	40	6	4	A	9.3	
-083-A27-SE12-05	▲	△	83	74	22	40	8	5	A	0.5	
-080-A27-SE12-06	▲	△	80	81	27	50	8	6	A	1.2	
-100-B32-SE12-07	▲	△	100	107	32	50	8	7	B	1.52	
-125-B40-SE12-08	▲	△	125	136	40	63	8	8	B	2.6	
-160-B40-SE12-07	▲	△	160	174	40	63	6	7	B	4.548	
-160-B40-SE12-10	▲	△	160	170	40	63	8	10	B	4.92	
-200-C60-SE12-08	▲	△	200	214	60	63	6	8	C	6.175	
-200-C60-SE12-12	▲	△	200	210	60	63	6	12	C	7.6	
-250-C60-SE12-10	▲	△	250	264	60	63	6	10	C	12.596	
-250-C60-SE12-14	▲	△	250	260	60	63	6	14	C	13.5	
-315-D60-SE12-18	▲	△	315	325	60	70	6	18	D	20.8	
-100-B32-SE18-04	▲	△	100	120	32	63	10.4	4	B	2.22	
-125-B40-SE18-05	▲	△	125	145	40	63	10.4	5	B	3.15	
-160-B40-SE18-06	▲	△	160	180	40	63	10.4	6	B	5.01	
-200-C60-SE18-08	▲	△	200	220	60	63	10.4	8	C	9.9	
-250-C60-SE18-10	▲	△	250	270	60	63	10.4	10	C	13.1	
-315-D60-SE18-12	▲	△	315	335	60	80	10.4	12	D	24.5	

▲ Stock available △ Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Shim	Shim screw	Wrench	Wrench
Ø50-Ø315	SEET12□□	180M3.5x12	S138S	SMS×7XA	WT150S	WH35L
Ø100-Ø315	SEET18□□	180M5×17	S138S	SMB×6XA	WT201T	WH50L

Tools code key: 026-027 Grade selection guide: 019-023 Technical data: 0271-0276

Spare parts
Tools specification
Tool shape, dimensions, stock, etc

Assembly of tools and spare parts

Tools code key, reference to grade selection, technical data

Inserts specification
Insert shape, type, dimensions, grade, stock, etc.

Selection of inserts

Good working condition Normal working condition Bad working condition

Steel Cast iron Non-ferrous metal High speed alloy Ti alloy

Insert shape	Type	Basic dimensions(mm)						CVD Coating					PVD Coating			Camp	Dimensional class			
		L	IC	IS	D1	RCH	R	VC020	VC025	VC030	VC035	VC040	VC045	VC050	VC055			VC060	VC065	VC070
SEET12T3-DF	SEET12T3-DF	13.4	13.4	3.97	4.1	2.55	-	★												
	SEET12T3-CF	13.4	13.4	3.97	4.1	2.55	-		★											
SEET12T3-EF	SEET12T3-EF	13.4	13.4	3.97	4.1	2.55	-			★										
	SEET12T3-DM	13.4	13.4	3.97	4.1	2.55	-	★												
SEET12T3-DM	SEET12T3-DM	13.4	13.4	3.97	4.1	2.55	-				★									
	SEET12T3-EM	13.4	13.4	3.97	4.1	2.55	-					★								
SEET12T3-EM	SEET12T3-EM	13.4	13.4	3.97	4.1	2.55	-						★							
	SEET12T3-DR	13.4	13.4	3.97	4.1	2.55	-	★												
SEET12T3-DR	SEET12T3-DR	13.4	13.4	3.97	4.1	2.55	-							★						
	SEET12T3-LH	13.4	13.4	3.97	4.1	2.55	-													★
SEET12T3-W	SEET12T3-W	17.82	13.4	3.97	4.1	9.48	500	★	★											
	SEET12T3-W	24.78	18.0	6.1	5.5	11.0	500			★										

★ Recommended grade (always stock available) ● Available grade (always stock available) □ Make-to-order

How to choose indexable milling inserts

■ Detailed information for indexable milling inserts

Listed according to insert shape

Select insert grade according to workpiece material and working condition. Prior to selecting grade, please refer to the working condition suitable for the workpiece material.

- 😊 Good working condition: machine works well and stably. There are high requirements for dimensional precision of components and quality surface.
- 😐 Normal working condition: machine works normally. There are certain requirements for dimensional precision of components and surface quality.
- 😞 Bad working condition: machine works with bad stability. There are high requirements for high metal removal rate.

Insert shape and size

Insert shape

Insert grade

Insert shape	Type	Basic dimensions(mm)					CVD Coating				PVD Coating		Cermel		Cemented carbide								
		INSL	W1	S	D1	RE	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YBG320	YBC302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201	
	APKT11T304-APL	12.24	6.6	3.6	2.8	0.4								*									
	APKT11T308-APL	12.24	6.6	3.6	2.8	0.8	*	*	*					*									
	APKT160408-APL	17.877	9.33	5.76	4.4	0.8	*	*	*					*									
	APKT070204-APM	7.32	4.34	2.38	2	0.4	●	●					*										
	APKT11T304-APM	12.24	6.6	3.6	2.8	0.4	●						*										
	APKT11T308-APM	12.24	6.6	3.6	2.8	0.8	●	●					*	●	●								
	APKT11T312-APM	12.24	6.6	3.6	2.8	1.2		●					*										
	APKT11T316-APM	12.24	6.6	3.6	2.8	1.6							*										
	APKT11T320-APM	12.24	6.6	3.6	2.8	2.0		●					*										
	APKT160408-APM	17.877	9.33	5.76	4.4	0.8	●	●					*		●	●							
	APKT160416-APM	17.877	9.33	5.76	4.4	1.6	●	●					*		●	●							
	APKT160420-APM	17.877	9.33	5.76	4.4	2.0		●					*										
	APKT160424-APM	17.877	9.33	5.76	4.4	2.4							*										
	APKT160430-APM	17.877	9.33	5.76	4.4	3.0							*										
		APKT070204-APF	7.32	4.34	2.38	2	0.4	●	●					*									
APKT11T304-APF		12.24	6.6	3.6	2.8	0.4	●	●					*										
APKT11T308-APF		12.24	6.6	3.6	2.8	0.8	●	●					*	●	●								
APKT160408-APF		17.877	9.33	5.76	4.4	0.8	●						*		●	●							
	APKT11T304-ALH	12.24	6.6	3.6	2.8	0.4															*	*	
	APKT11T308-ALH	12.24	6.6	3.6	2.8	0.8															*	○	
	APKT160408-ALH	17.877	9.33	5.76	4.4	0.8															*	*	

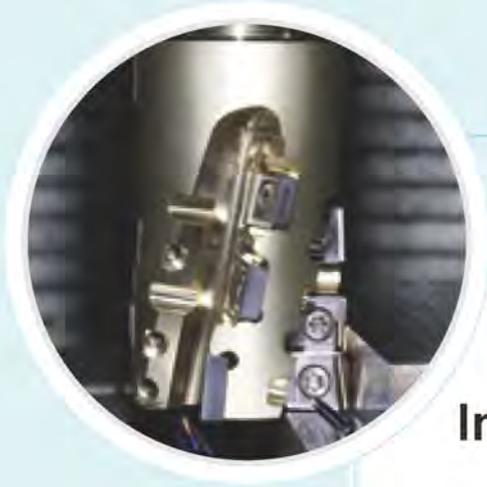
★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Insert shape

Insert dimension

Insert type

Stock condition



MILLING

Indexable Milling Tools

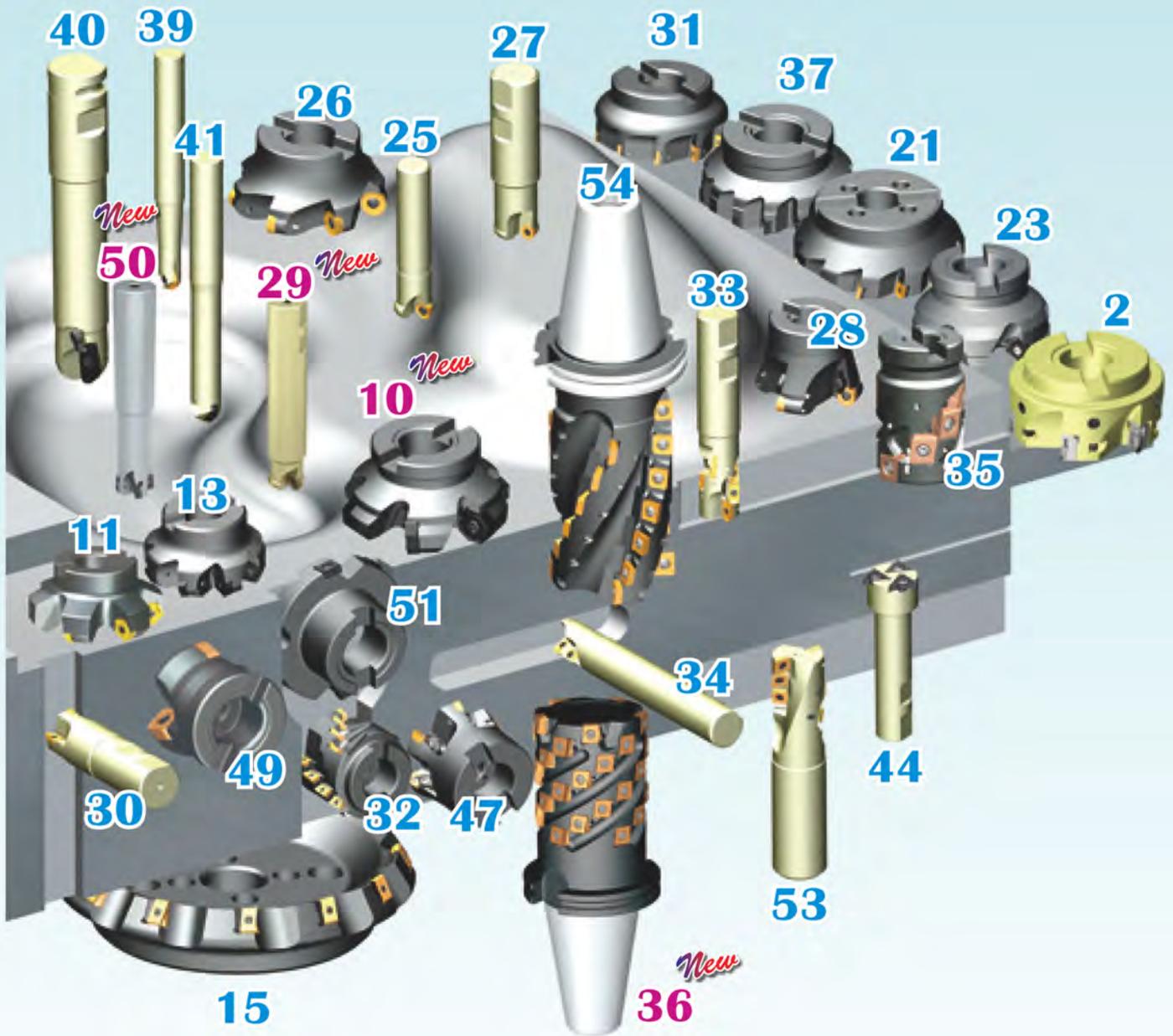
Indexable milling tools family	•	B6-B7
Indexable milling tools overview	•	B9-B17
Milling insert grades overview	•	B19
Grade classification for milling inserts	•	B20-B23
Indexable milling tools code key	•	B26-B27
Indexable milling tool series	•	B28-B227
High-speed High-precision milling tools series		B28-B32
Face milling tool series		B33-B115
Square shoulder milling tool series		B116-B149
Profile milling tool series		B150-B173
Side and face milling series		B174-B193
High feed rate milling tools series		B194-B213
Boring series		B214-B216
T-slot milling tool series		B217-B218
Helical end mill series		B219-B223
Chamfer milling tool series		B224-B227
Interchangeable milling cutter series		B228
Interchangeable tool holders		B229
Indexable milling inserts overview	•	B230-B233
Indexable milling inserts code key	•	B234-B235
Indexable milling inserts specification	•	B236-B270
Technical information	•	B271-B276



Indexable milling tools family



Number	Tool category	Page	Number	Tool category	Page	Number	Tool category	Page
1	AMA01	B29	11	FMA14	B63	21	FMP02	B89
2	AMP01	B31	12	FMA17	B65	22	FMP03	B94
3	FMA01	B33	13	FMD02(PN11)	B68	23	FMP12	B97
4	FMA03	B38	14	FMD02(HN09)	B73	24	FMP17	B100
5	FMA04(OFKT05□□)	B41	15	FMD03	B75	25	FMR01	B103
6	FMA04(ODH/MT06□□)	B44	16	FME02	B77	26	FMR02	B105
7	FMA07	B47	17	FME03	B79	27	FMR03	B108
8	FMA08	B51	18	FME04	B83	28	FMR04	B109
9	FMA11	B54	19	FME17	B85	29	FMR11	B112
10	FMA12	B59	20	FMP01	B87	30	EMP01	B116



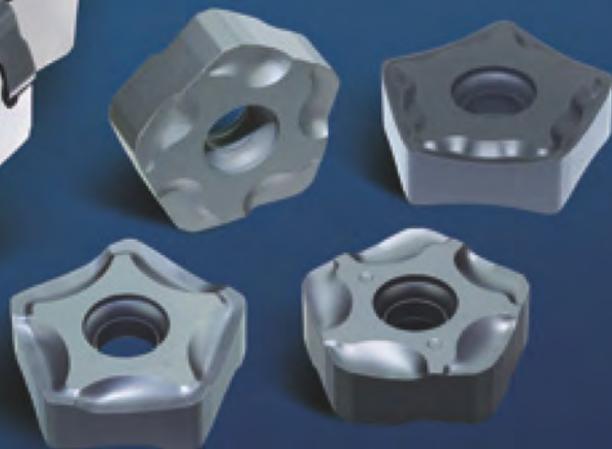
Number	Tool category	Page	Number	Tool category	Page	Number	Tool category	Page
31	EMP02	B119	40	BMR03	B154	50	XMR12	B208
32	EMP03	B120	41	BMR04	B167	51	XMP01	B215
33	EMP04	B121	42	SMP01	B175	52	TMP01	B217
34	EMP05	B127	43	SMP03	B178	53	HMP01(Ø40-Ø50)	B219
35	EMP09	B135	44	SMP05	B182	54	HMP01(Ø50-Ø80)	B220
36	EMP09 BT	B140	45	SMP08	B184	54	HMP01 EC(Ø50-Ø80)	B221
	EMP09 JT	B140	46	SMP09	B189		55	CM□01
37	EMP13	B145	47	XMR01(SDMT□□)	B194			
38	BMR01	B150	48	XMR01(WPGT□□)	B198			
39	BMR02	B152	49	XMR03	B206			



Whirlwind

FMD02

Milling Tools Series



Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
High-speed high-precision milling tools	AMA01  B29	KAPR=45° a _p max=6.6	SEHT12T3AFFN-AL	High-speed, high-precision milling of aluminum alloy and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø500 • High-strength, lightweight aluminum alloy tool body • Unique tool clamping design • Elastic runout adjustment structure, high-pressure internal cooling, combined with high-precision cutting inserts, to achieve high-precision, efficient, and stable processing of various materials
		KAPR=45° a _p max=2.0	SEHT12T308AFFN-CBN		
		KAPR=45° a _p max=2.5	SEHT12T308AFFN-PCD		
	AMP01  B31	KAPR=90° a _p max=12	APHT12T304PPFR-AL		
		KAPR=90° a _p max=1.0	APHT12T304-W		
		KAPR=90° a _p max=2.0	APHT12T304PPFR-CBN		
		KAPR=90° a _p max=3.0	APHT12T304PPFR-PCD		
Face milling tools	FMA01  B33-34	KAPR=45° a _p max=6.0	SEET12T3-DF/DM/DR SEET12T3-CF/CM/CR SEET12T3-EF/EM SEET12T3-LH/W	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø315 • Large lead angle design for quicker cutting • Compatible with a variety of slot inserts, widely applicable • Compatible with wipers to improve surface quality
		KAPR=45° a _p max=10.4	SEET18T6-DM/EM/W		
	FMA03  B38	KAPR=45° a _p max=5.5	SE□□1203A□□□□	Face milling of steel, stainless steel, and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø315 • Large lead angle design for quicker cutting • Block compression structure, good vibration resistance
		KAPR=45° a _p max=7.5	SE□□1504A□□□□		
	FMA04 <i>New</i>  B41	KAPR=45° a _p max=3.5	OFKT05T3-DF/DM OFKT05T3-LH	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø160 • 8-flute high-economic milling cutter • High precision with screw compression
		 B44	KAPR=45° a _p max=4.0		
	FMA07  B48		KAPR=45° a _p max=4.0	ONHU060408-PF/PM/W	Common face milling of steel and cast iron
		 B47	KAPR=45° a _p max=5.0	ONHU08T508-PF/PM/W	

Indexable milling tools

Indexable milling tools overview

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Face milling tools	FMA08 <i>New</i>  B51	KAPR=45° a _p max=1.0	ONHU060408-CM	Precision face milling of cast iron components	<ul style="list-style-type: none"> • Tool diameter Ø100-Ø315 • Precision face milling cutter with adjustable dedicated wipers for strong operability • Double-sided 16-flute inserts, economically efficient, compatible with FMA07 series • Preferred tool for broad surface precision machining of K-class materials
			XEEC120904		
	FMA11  B54-55	KAPR=45° a _p max=5.5	SNEG1205ANR-GM/HGR/GR/W	Face milling of steel, alloy steel, stainless steel, cast iron, and high-temperature alloys	<ul style="list-style-type: none"> • Tool diameter Ø63-Ø315 • Double-sided slot milling inserts with 8 cutting edges, economically efficient • Large lead angle design for inserts, unique chipbreaker structure, low power consumption during machining • Double-negative structure and ultra-thick inserts ensure higher tool safety and excellent impact resistance, suitable for deep cutting operations • Inserts have wiper edges, excellent machining performance
		KAPR=45° a _p max=7.0	SNEG1506ANR-GM/HGR/GR/W		
		KAPR=45° a _p max=9.0	SNEG1907ANR-HGR/GR		
	FMA12 <i>New</i>  B59-60	KAPR=45° a _p max=4.0	ONHU0604□□ANN-GL/GM/GH ONMU0604□□-GH/GM	Face milling of steel, alloy steel, stainless steel, cast iron, and high-temperature alloys	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø315 • Unique 3D spiral insert design with 16 cutting edges • Double-negative structure of the tool body, combined with the spiral insert design, achieves a positive axial lead angle, reducing cutting forces and aiding chip evacuation
		KAPR=45° a _p max=5.5	ONMU09□□□□-GM/GH ONHU09□□□□ANN-GM/GH/GL		
	FMA14  B63	KAPR=45° a _p max=5.5	PNEG110512-GL PNEG110530-GM PNEG110530-GH	Common face milling of steel, stainless steel, and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø315 • 10-flute high-economic milling cutter • 45° entering angle balance design • Strong vibration resistance ensures good machining surface quality
FMA17 <i>New</i>  B65	KAPR=45° a _p max=6.5	SNGX1205ANN-GL/GM/GH/LH/W SNMX1205ANN-GM SNMX120512-GL/GM/GH	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloys	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø400 • Double-sided slot milling inserts with 8 cutting edges, economically efficient • Left and right use the same inserts, with the cutter divided into sparse and dense teeth. • Inserts have wiper edges, high machining surface quality • Various chipbreakers with different coating materials, widely applicable 	
FMD02   B68-69 B73	KAPR=67° a _p max=5.0	PNEG110512R/L-CF/CM/CR	Common face milling of steel and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø315 • 10-flute high-economic milling cutter 	
	KAPR=67° a _p max=7.5	PNEG110512R/L-PF/PM/PR			
	KAPR=67° a _p max=6.5	PNEG110512-KH/KM/KL			
	KAPR=55° a _p max=6.0	HNEX090512-DF/DM HNEX090512-DR	Common face milling of cast iron	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø315 • 12-flute high-economic milling cutter • Block compression structure, convenient for tool insert installation and removal 	

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Face milling tools	FMD03  B75	KAPR=60° a _p max=12.0	LNKT2007DN-ZR	Steel, alloy steel, stainless steel, cast iron heavy face milling	<ul style="list-style-type: none"> • Tool diameter Ø125-Ø400 • Double-positive lead angle design, effectively reduces cutting forces • Insert mounting, suitable for heavy-duty machining with large cutting depths • Simple and convenient clamping form
		KAPR=60° a _p max=17.0	LNKT2510-ZR		
	FME02  B77	KAPR=75° a _p max=6.0	SPKW1204EDFR SPKW1204EDSR SPKT1204EDR	Common face milling of steel, alloy steel, and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø125 • 75° entering angle general face milling cutter • Compatible with different chipbreaker inserts, widely applicable
	FME03  B79	KAPR=75° a _p max=6.0	SPON1203(1504)ED□□ SPOR1203(1504)ED□□ SPEX1203□□-1	Common face milling of steel, alloy steel, and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø315 • 75° entering angle general face milling cutter • Block compression structure, convenient for tool insert installation and removal
		KAPR=75° a _p max=8.0	SPON1504ED□□ SPOR1504ED□□ SPEX1504□□-1		
	FME04  B83	KAPR=75° a _p max=12.0	LNKT1506EN-ZR	Steel, alloy steel heavy face milling	<ul style="list-style-type: none"> • Tool diameter Ø125-Ø315 • Double-positive lead angle design, effectively reduces cutting forces • Insert mounting, suitable for heavy-duty machining with large cutting depths • Simple and convenient clamping form
	FME17 <i>New</i>  B85	KAPR=75° a _p max=8.0	SNGX1205ENN-GL/GM/GH/W SNMX120512-GL/GM/GH	Steel, alloy steel, stainless steel, cast iron, high-temperature alloy face milling	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø400 • Double-sided slot milling inserts, 8 cutting edges, economically efficient • Left and right use the same inserts, with the cutter divided into sparse and dense teeth. • Inserts have wiper edges, high machining surface quality • Various chipbreakers with different coating materials • Widely applicable
	FMP01  B87	KAPR=90° a _p max=18.0	TPKN2204PD□ TPKN2204PDF□ TPKN2204PDT□ TPMR2204PDS□	Face milling of steel, alloy steel, cast iron	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø315 • 90° entering angle, suitable for square shoulder milling • Block structure for faster tool insert installation and removal
	FMP02  B89	KAPR=90° a _p max=6.7	SEET09T308PER-APF/ APM/APR	Face milling of steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloy	<ul style="list-style-type: none"> • Tool diameter Ø40-Ø315 • 90° entering angle, suitable for square shoulder milling • Sparse teeth, dense teeth, ultra-dense teeth design • Edge precision ground inserts, high workpiece surface quality • Correct chipbreaker and grade matching, suitable for finishing, semi-finishing, and roughing
		KAPR=90° a _p max=10.8	SEET120308PER-APF/ APM/APR SEET120308-LH		
FMP03  B94	KAPR=90° a _p max=13.0	LNKT1506EN-ZR	Steel, alloy steel heavy face milling	<ul style="list-style-type: none"> • Tool diameter Ø125-Ø315 • Double-positive lead angle design, effectively reduces cutting forces • Insert mounting, suitable for heavy-duty machining with large cutting depths • Simple and convenient clamping form 	
	KAPR=90° a _p max=17.0	LNKT2007DN-ZR			
	KAPR=90° a _p max=22.0	LNKT2510-ZR			

Indexable milling tools

Indexable milling tools overview

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Face milling tools	FMP12  B97 B98	KAPR=90° a _p max=5.7	WNHU0604□□PNR-GM WNMU060408PNN-GM	Steel, alloy steel, stainless steel, cast iron, aluminum alloy, and high-temperature alloy face milling	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø315 • 90° entering angle can be used for shoulder milling, face milling, slot milling, etc.; 6-flute double-sided groove milling cutter, equipped with wiper edge, suitable for high-feed processing; tool body with double negative angles, combined with unique insert structure to achieve double positive tool angle, reducing cutting force • Tool diameter Ø25-Ø50 • 90° entering angle can be used for shoulder milling, face milling, slot milling, etc.; 6-flute double-sided groove milling cutter, equipped with wiper edge, suitable for high-feed processing; tool body with double negative angles, combined with unique insert structure to achieve double positive tool angle, reducing cutting force
		KAPR=90° a _p max=7.7	WNHU0806□□PNR-GM WNMU080608PNN-GM WNHU080616PNR-LH		
		KAPR=90° a _p max=5.7	WNHU0604□□PNR-GM		
	FMP17 <i>New</i>  B100-101	KAPR=88° a _p max=10.5	SNGX1205PNN-GL/GM/GH/W SNMX120512-GL/GM/GH SNCU120420-W4	Steel, alloy steel, stainless steel, cast iron, and high-temperature alloy face milling.	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø400 • 88° entering angle, strong tool functionality • Double-sided groove milling cutter, 8 cutting edges, good economy • Left and right use the same inserts, with the cutter divided into sparse and dense teeth. • Multiple groove types combined with various coating materials, widely used
	FMR01  B103	a _p max=5.0	RCKT10T3MO-DM	Steel, alloy steel, stainless steel, cast iron, and difficult-to-machine material type profile milling	<ul style="list-style-type: none"> • Tool diameter Ø25-Ø50 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds • Economical milling cutter with screw clamping
		a _p max=6.0	RCKT1204MO-DM/DR/ER/NM		
	FMR02  B105	a _p max=6.0	RCKT1204MO-DM/DR/ER/NM	Steel, alloy steel, stainless steel, cast iron, hardened steel, and difficult-to-machine materials, profile milling, face milling	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø160 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds • Economical milling cutter with screw tightening
		a _p max=8.0	RCKT1606MO-DM/DR/ER/NM		
		a _p max=10.0	RCKT2006MO-DR/ER		
	FMR03  B108	a _p max=4.0	RDKW0803MO	Steel, alloy steel, stainless steel, cast iron, and difficult-to-machine material type profile milling	<ul style="list-style-type: none"> • Tool diameter Ø16-Ø50 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds • Economical milling cutter with screw tightening
		a _p max=5.0	RDKW10T3MO		
		a _p max=6.0	RDKW1204MO		
FMR04  B109	a _p max=6.0	RDKW1204MO	Steel, alloy steel, stainless steel, cast iron profile milling, face milling	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø160 • R-type inserts have extremely strong cutting edges • Suitable for surface machining of molds 	
	a _p max=8.0	RDKW1605MO			
	a _p max=10.0	RDKW2006MO			
FMR11 <i>New</i>  B112 B113	a _p max=5.0	R□MW10T3MO-H R□MT10T3MO-M R□MT10T3MO-MM	Steel, alloy steel, stainless steel, cast iron, hardened steel and difficult-to-machine materials, cavity copy milling, face milling	<ul style="list-style-type: none"> • Tool diameter Ø20-Ø40 • Insert anti-rotation structure designed for stable processing • A wide range of groove options to handle various material processing • Screw compression, can be indexed 8 times, excellent economy • Tool diameter Ø40-Ø80 • Insert anti-rotation structure designed for stable processing • A wide range of groove options to handle various material processing • Screw compression, can be indexed 8 times, excellent economy 	
	a _p max=6.0	R□MW1204MO-H R□MT1204MO-M R□MT1204MO-MM			
	a _p max=5.0	R□MW10T3MO-H R□MT10T3MO-M R□MT10T3MO-MM			
	a _p max=6.0	R□MW1204MO-H R□MT1204MO-M R□MT1204MO-MM			

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Square shoulder milling tools	EMP01  B116-118	KAPR=90° a _{pmax} =6.0	APKT070204-APF/APM	Steel, alloy steel, stainless steel, difficult-to-machine materials, cast iron, aluminum alloy multi-functional milling	<ul style="list-style-type: none"> Two interface forms of straight shank and end mill shank, tool diameter Ø10-Ø63 90° entering angle, suitable for shoulder milling, slot milling, ramp milling, etc With wipers, also suitable for flat milling The insert is a 3D helical edge, with low cutting resistance
		KAPR=90° a _{pmax} =10.5	APKT11T3□□-APF/APM APKT11T3□□-ALH		
		KAPR=90° a _{pmax} =15.5	APKT160408-APF/APM APKT160408-ALH		
	EMP02  B119	KAPR=90° a _{pmax} =11.5	APKT11T3□□-APF/APM/APL APKT11T3□□-ALH	Steel, alloy steel, stainless steel, difficult-to-machine materials, cast iron, and aluminum alloy face milling	<ul style="list-style-type: none"> Tool diameter Ø50-Ø160 90° entering angle, suitable for shoulder milling Equipped with wipers, also suitable for flat milling The insert is a 3D helical edge, with low cutting resistance
		KAPR=90° a _{pmax} =15.5	APKT160408-APF/APM/APL APKT160408-ALH		
	EMP03  B120	KAPR=90° a _{pmax} =39.0	APKT11T3□□-APF/APM/APL APKT11T3□□-ALH	Steel, alloy steel, stainless steel, cast iron, aluminum alloy, difficult-to-machine materials, and deep milling processing	<ul style="list-style-type: none"> Tool diameter Ø50-Ø100 Spiral vertical milling cutter with positive spiral angle, good chip removal Used for side milling and slotting With dense teeth structure for high processing efficiency
			APKT16-APF/APM/APL		
	EMP04  B121	KAPR=90° a _{pmax} =29.4~58.0	APKT11T3□□-APF/APM APKT11T3□□-ALH	Steel, alloy steel, stainless steel, cast iron, aluminum alloy, difficult-to-machine materials, and deep milling processing	<ul style="list-style-type: none"> Tool diameter Ø20-Ø40 Spiral vertical milling cutter with positive spiral angle, good chip removal Used for side milling and slotting With dense teeth structure for high processing efficiency
	EMP05  B127  B128	KAPR=90° a _{pmax} =20~40	ADKT□□-GM	Drilling, milling, and multi-functional processing of steel, alloy steel, stainless steel, cast iron materials	<ul style="list-style-type: none"> Tool diameter Ø16-Ø50 Tool functions include drilling, slotting, shoulder milling Slot milling, and ramp milling
	EMP09  B135  B136-137  B138  B139	KAPR=90° a _{pmax} =8.0	LNKT0804□□PNR-GM/GL LNMT080404PNR-GM	Shoulder and face milling of steel, alloy steel, stainless steel, and cast iron	<ul style="list-style-type: none"> Tool diameter Ø25-Ø40 Two interface forms: straight shank and end mill shank 90° entering angle, suitable for shoulder milling, slot milling, etc. Vertical installation of the insert, able to withstand greater cutting force
		KAPR=90° a _{pmax} =11.5	LNKT1206□□PNR-GM/GL LNMT120608PNR-GM		
		KAPR=90° a _{pmax} =8.0	LNKT0804□□PNR-GM/GL LNMT080404PNR-GM	Face milling of steel, alloy steel, stainless steel, cast iron	<ul style="list-style-type: none"> Tool diameter Ø40-Ø125 90° entering angle, suitable for shoulder milling, face milling vertical installation of the insert, good tool rigidity
		KAPR=90° a _{pmax} =11.5	LNKT1206□□PNR-GM/GL LNMT120608PNR-GM		
		KAPR=90° a _{pmax} =15	LNKT1607□□PNR-GM/GL LNMT160708PNR-GM		
KAPR=90° a _{pmax} =33~63		LNKT1206□□PNR-GM/GL LNMT120608PNR-GM	Deep milling of steel, alloy steel, stainless steel, cast iron	<ul style="list-style-type: none"> Tool diameter Ø40-Ø80 Used for side milling and slotting Spiral cutting edge design, swift cutting 	
KAPR=90° a _{pmax} =30~53		LNKT0804□□PNR-GM/GL LNMT080404PNR-GM LNKT1206□□PNR-GM/GL LNMT120608PNR-GM			

Indexable milling tools

Indexable milling tools overview

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Square shoulder milling tools	EMP09 BT <i>New</i>  B140	KAPR=90° a _{pmax} =63~125	LNKT1206□□PNR-GM/ GL LNMT120608PNR-GM	Deep milling of steel, alloy steel, stainless steel, cast iron	<ul style="list-style-type: none"> • Tool diameter Ø50-Ø80 • 90° entering angle, suitable for shoulder milling, face milling, slot milling, etc • Spiral cutting edge design, large rake angle, quick and smooth chip removal • Vertical installation of the insert, good tool rigidity, more stable processing
	EMP09 JT <i>New</i>  B140	KAPR=90° a _{pmax} =85~125			
	EMP13  B145	KAPR=90° a _{pmax} =11.2	AN□X1105□□PNR-GM/LH	Steel, alloy steel, cast iron, aluminum alloy multifunctional processing	<ul style="list-style-type: none"> • Tool diameter Ø25-Ø160 • Thickened insert design, combined with a double negative structure body, greatly enhances impact resistance while achieving double positive cutting angles and reducing cutting resistance • Reasonably designed, high-precision controlled cutting edge, capable of achieving high-quality 90° shoulder processing
	 B146	KAPR=90° a _{pmax} =14.5	AN□X1506□□PNR-GM/LH		
	 B147	KAPR=90° a _{pmax} =43~64	AN□X1105□□PNR-GM/LH AN□X1506□□PNR-GM/LH		
 B147	KAPR=90° a _{pmax} =43~53	AN□X1506□□PNR-GM/LH			
Profile milling tools	BMR01  B150	Refer to tool specifications for cutting depth details	ZDET□□CYR□□ ZPNT2204CYR□□ SPMT060304 SDMT□□	Steel, alloy steel, stainless steel, cast iron profile milling	<ul style="list-style-type: none"> • Tool diameter Ø20-Ø63 • Best suited for roughing of large molds • Arc edge with three-edge insert, economical
	BMR02  B152		ROHX□□	Steel, alloy steel, stainless steel, cast iron profile milling	<ul style="list-style-type: none"> • Tool diameter Ø12-Ø20 • Used for profile finishing • High precision and stable installation • Double-ended insert, economical
	BMR03  B154		XPHT□□R□□-GM	Steel, alloy steel, stainless steel, cast iron profile milling	<ul style="list-style-type: none"> • Tool diameter Ø16-Ø50 • Best suited for roughing of molds • Utilizes 3D complex groove insert, high arc accuracy • High rigidity cutter body
	 B155				
 B156					
	 B157				

Indexable milling tools

Indexable milling tools overview

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Profile milling tools	BMR04  B167 B168	Refer to tool specifications for cutting depth details	ZOHX□□	Steel, alloy steel, stainless steel, cast iron profile milling	<ul style="list-style-type: none"> • Tool diameter Ø12-Ø32 • High precision tool, used for profile finishing • Two groove types, suitable for different working conditions • High installation precision, good stability
	SMP01  B175 B176		XSEQ12□□	Steel, alloy steel, stainless steel, cast iron slot milling	<ul style="list-style-type: none"> • Tool diameter Ø63-Ø250 • Available in both key and core shaft connections • Slot width series: 4, 5, 6, 7, 8mm
	SMP03  B178 B179		MPHT□□	Steel, alloy steel, stainless steel, cast iron slot milling	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø200 • Available in both key and core shaft connections • Slot width series: 8, 10, 12, 16, 18, 20mm
	SMP05  B182		QC16L□□ QC22L□□	Steel, alloy steel, stainless steel, cast iron grooving	<ul style="list-style-type: none"> • Tool diameter Ø25-Ø44
	SMP08 <i>New</i>  B184-185 B186-187		LNET10□□□□-GM LNET12□□□□-GM	Steel, alloy steel, stainless steel, cast iron slot milling	<ul style="list-style-type: none"> • Tool diameter Ø63-Ø250 • The positioning structure of the cutter body is optimized and the positioning is reliable. The insert adopts a vertical mounting structure, which has excellent impact resistance and makes cutting faster • The size of the tool tip arc can be customized according to different cutting widths and diameters. The optimized design of the tool body is matched with a high-precision insert to process the groove bottom surface with good quality and high precision • Tool diameter Ø63-Ø250 • Optimized design of cutter body positioning structure, reliable positioning • The insert adopts a vertical structure, which has excellent impact resistance and makes cutting faster • The size of the tool tip arc can be customized according to different cutting widths and diameters • The optimized design of the cutter body is matched with a high-precision insert to process the groove bottom with good surface quality and high precision

Indexable milling tools

Indexable milling tools overview

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features	
Side and face milling tools	SMP09 <i>New</i>  B189-190	Refer to tool specifications for cutting depth details	LNGX1005□□-GM LNGX1407□□-GM	Steel, alloy steel, stainless steel, cast iron slot milling	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø250 • Optimized design for tool body positioning, reliable positioning • Insert adopts vertical installation structure, excellent impact resistance, with a large front angle design, effectively reducing cutting forces, ensuring swift cutting • Tools and inserts can be customized to meet various width and arc size groove processing needs 	
	 B191-192		<ul style="list-style-type: none"> • Tool diameter Ø80-Ø315 • Optimized design for tool body positioning, reliable positioning • Insert adopts vertical installation structure, excellent impact resistance, with a large front angle design, effectively reducing cutting forces, ensuring swift cutting • Tools and inserts can be customized to meet various width and arc size groove processing needs 			
Special milling (high feed) tools	XMR01  B194		Refer to tool specifications for cutting depth details	SDMT□□-DM/PM/NM	profile milling and face milling for steel, alloy steel, stainless steel, cast iron, and difficult-to-machine materials	<ul style="list-style-type: none"> • Tool diameter Ø20-Ø160 • Available in straight shank and collet chuck interfaces • Effectively dissipates radial cutting forces, enabling high feed cutting • Suitable for plunge milling operations • Double clamping for secure and reliable operation
	 B195					
	 B198	WPGT□□ZSR WPGT□□ZSR-PM		profile milling and face milling for steel, alloy steel, stainless steel, and cast iron materials	<ul style="list-style-type: none"> • Tool diameter Ø20-Ø160 • Available in straight shank and collet chuck interfaces • Effectively dissipates radial cutting forces, enabling high feed cutting • Double clamping for secure and reliable operation 	
	 B199					
	XMR03  B206					SNGU□□-GM
XMR12 <i>New</i>  B208	ENMX120608-GM ENMX1206XR-GM ENMX1206R□-GM	Cavity milling and face milling of steel and alloy steel materials	<ul style="list-style-type: none"> • Tool Diameter Ø16-Ø63 • Three interface forms: straight handle, sleeve type and interchangeable type • The type of the assembly insert determines the function of the tool, enabling square shoulders, large feeds, profiling, etc • The insert adopts double-sided chipbreaker design and is extremely economical 			
 B209						

Indexable milling tools overview

Operating pattern	Series/Shape	Approach angle / Max. cutting depth.	Applicable insert	Application overview	Features
Boring and milling tools	XMP01  B215	KAPR=90° a _{pmax} =18~36	CNE121006A/B	Flat milling, side milling, slot milling, and hole milling for steel, alloy steel, and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø80-Ø400 • 90° entering angle, with insert vertical installation structure, axial and radial cutting widths adjustable as required. Open chip groove design ensures smooth chip removal. Large bottom insert width, strong ability for spiral interpolation milling. Both types of groove insert are interchangeable, suitable for different machining conditions
T-slot milling tools	TMP01  B217	KAPR=90° a _{pmax} =9~28	MPHT□□	T-slot machining on cast iron workbenches	<ul style="list-style-type: none"> • Tool diameter Ø21-Ø60 • Machining nominal sizes of T-slots 12, 14, 18, 22, 28, 36 • Uses 86° diamond-shaped positive angle insert
Helical end mills	HMP01  B219	KAPR=90° a _{pmax} =55	APKT150412-PM/KM SPMT120408-PM/KM	Deep milling for steel, alloy steel, and cast iron	<ul style="list-style-type: none"> • Tool diameter Ø40, Ø80 • Uneven teeth pitch structure reduces vibration • Integral structure provides good rigidity; interchangeable head structure offers good economy
	 B220	KAPR=90° a _{pmax} =74~144			
	HMP01 EC  B221	KAPR=90° a _{pmax} =74~144			
Chamfering tools	CMZ01  B224	KAPR=30°	SPMT120408	Chamfering for steel, alloy steel, stainless steel, and cast iron	<ul style="list-style-type: none"> • Tool diameters Ø12, Ø25, Ø32, Ø36 • Also capable of small flat milling operations
	CMA01  B225	KAPR=45°			
	CMD01  B226	KAPR=60°			

Indexable milling tools

Indexable milling tools overview



Profile Milling Tool Series

Milling insert grades overview

Workpiece material	ISO code	Coating		Cermet	Cemented carbide	PCBN and PCD material
		CVD	PVD			
P Steel	P01					
	P10		YBG202 YBG205 YB9320	YNG151 YNG151C		
	P20	YBC302				
	P30	YBM253				
	P40		YBG302			
M Stainless steel	M01					
	M10	YBC302	YBG202 YBG205 YB9320	YNG151 YNG151C		
	M20					
	M30	YBM253				
	M40		YBG302			
K Cast iron	K01					BK1021 BK1041
	K10	YBD152	YBG105	YNG151 YNG151C	YD051	
	K20	YBD203				
	K30	YBD252			YD201	BK2531
	K40					
N Non ferrous metal	N01					
	N10				YD101	DN1021
	N20					
	N30				YD201	
S Heat resistant alloy & Ti alloy	S01					
	S10		YBG202			
	S20		YBS203			
	S30		YBS303			
H Super hard material	H01					
	H10					
	H20					
	H30					

Indexable milling tools

Milling insert grades overview

Grade classification for milling inserts

Coated Cemented Carbide CVD

Grade	Coating structure	Micro-structure	ISO applied range	Application field
YBC302	Combination of high toughness and high strength substrate with TiCN, thin Al ₂ O ₃ , and TiN coatings		P15~35 M10~30	Suitable for rough milling and semi-finish milling of P and M class materials with hardness up to HRC45
YBM253	Combination of high toughness gradient alloy substrate with TiCN and ultrafine Al ₂ O ₃ coatings		M10~30	Suitable for semi-finish milling and rough milling of P and M class materials
YBD152	Excellent combination of high wear-resistant substrate with TiCN and thick Al ₂ O ₃ coatings		K05~25	Suitable for semi-finish milling and finish milling of K class materials
YBD203	Substrate with good toughness and wear resistance combined with high toughness and high strength TiCN and Al ₂ O ₃ coatings		K10~30	Suitable for general milling of K class materials such as ductile iron and malleable iron
YBD252	Substrate with high toughness combined with TiCN and thick Al ₂ O ₃ coatings		K15~35	Suitable for rough milling and semi-finish milling of K class materials

Application case

Component shape			
Machine and cooling	CNC gantry milling machine, wet processing	Vertical machining center, dry processing	Horizontal machining center, dry processing
Workpiece material and hardness	Cast stainless steel HB220-260	Forging steel No. 45 HB240-270	HT250 HB220
Type of machining	Milling flat surfaces	Milling flat surfaces	Milling flat surfaces
Applicable tool	FMA04-160-C40-OD06-10	FMA01-125-B40-SE12-08	FMP02-100-B32-SE12-07
Applicable insert	YBM253/ODHT060512-GM	YBC302/SEET12T3-DR	YBD252/SEET120308PER-APM
Cutting parameters	Vc=120m/min, fz=0.15mm/z, ap=2mm	Vc=212m/min, fz=0.2mm/z, ap=3mm	Vc=160m/min, fz=0.2mm/z, ap=1.5mm

Application results



Grade classification for milling inserts

Coated Cemented Carbide PVD

Grade	Coating structure	ISO applied range	Application field
YBG105	Fine-grain alloy substrate + nano coating	K05~K20 P10~30	Suitable for precision milling and semi-finish milling of K class materials
YBG202	Substrate with excellent deformation resistance + nano coating	M10~30 S05~20	A highly versatile PVD grade, widely applicable to semi-finish milling of P, M, and S class materials
YBG205	Ultrafine carbide substrate + nano coating	P10~30 M10~30	Suitable for precision milling and semi-finish milling of P and M class materials
YBG302	Substrate with good toughness and strength + nano coating	P25~40 M25~40	Suitable for rough milling of P and M class materials
YB9320	High-toughness substrate + TiAlN-based nano-multilayer coating	P10~30 M10~30	A highly versatile PVD grade, suitable for precision and semi-finish milling of P and M materials
YBS203	Substrate material with excellent deformation resistance + nano coating	S10~20	A general grade for S-class machining, suitable for milling S-class difficult-to-machine materials
YBS303	Substrate with good toughness and strength + nano coating	S20~30	Suitable for milling titanium alloy materials
YBH053	Ultrafine carbide substrate + TiAlN-based nano-multilayer coating	H05~20	Suitable for precision milling of H-class hardened materials

Application case

Component shape		
Machine and cooling	Machining center, dry cutting	Gantry milling machine, dry cutting
Workpiece material and hardness	Ductile cast iron HB 220	7CrSiMoV HRC25
Type of machining	Milling flat surfaces	Milling cavity
Applicable tool	EMP02-050-A22-AP11-06	BMR03-050-MT5-M
Applicable insert	YBG105/APKT11T308-APM	YBG302/XPHT50R2507- GM
Cutting parameters	$V_c=235\text{m/min}$, $f_z=0.15\text{mm/z}$, $a_p=1\sim3\text{mm}$	$V_c=120\text{m/min}$, $f_z=0.25\text{mm/z}$, $a_p=8\text{mm}$

Application results

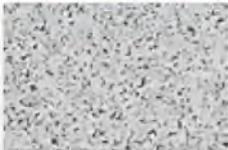
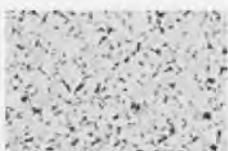


Indexable milling tools

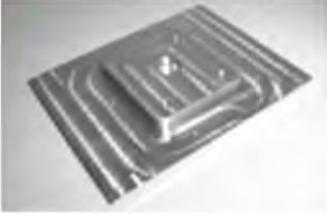
Grade classification for milling inserts

Grade classification for milling inserts

Cemented Carbide

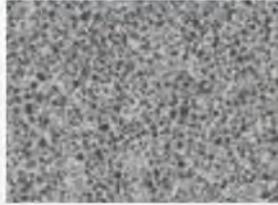
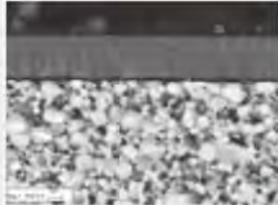
Grade	Coating structure	ISO applied range	Application field
YD101		N05-25	Suitable for finish milling and semi-finish milling of N-class materials
YD201		K15-35	Suitable for semi-finish milling and rough milling of K-class materials, as well as rough milling of N-class materials
		N15-30	

Application case

Component shape			
Machine and cooling	Vertical machining center, wet processing	Gantry milling machine, wet processing	Gantry milling machine, dry cutting
Workpiece material and hardness	Aluminum alloy HB100	40CrMnMo HB240	HT250 HB220
Type of machining	Milling flat surfaces	Milling flat surfaces	Milling flat surfaces
Applicable tool	FMA01-100-B32-SE12-07	FMP01-100-B32-TP22-06	FME03-160-B40-SP15-10
Applicable insert	YD101/SEET12T3-LH	YD201/TPKN2204PDR	YD201/SPKN1504EDTR
Cutting parameters	$V_c=300-350\text{m/min}$, $a_p=1-2\text{mm}$, $f_z=0.2\text{mm/z}$	$V_c=170\text{m/min}$, $a_p=5-7\text{mm}$, $f_z=0.3\text{mm/z}$	$V_c=100-130\text{m/min}$, $a_p=7\text{mm}$, $f_z=0.35\text{mm/z}$
Application results	 <p>Number of workpiece machined</p>	 <p>Number of workpiece machined</p>	 <p>Number of workpiece machined</p>

Grade classification for milling inserts

Cermet

Grade	Coating structure	ISO applied range	Application field
YNG151		P05~20	Widely used in finish milling of P, M, and K-class materials
		M05~20	
		K05~20	
YNG151C		P01~20	Widely used in finish milling of P, M, and K-class materials
		M01~20	
		K01~20	

Application case

Component shape



Machine and cooling

Machining center, dry cutting

Machining center, dry cutting

Workpiece material and hardness

Grade 45 steel HB 170~220

NAK80 HRC42~48

Type of machining

Finish milling flat surfaces

Finish milling flat surfaces

Applicable tool

FMA03-160-B40-SE12-08

FME03-160-B40-SP12-10

Applicable insert

YNG151/SEEN1203AFTN

YNG151C/SPEN1203EDER

Cutting parameters

$V_c=400\text{m/min}$, $f_z=0.1\text{mm/z}$, $a_p=0.3\text{mm}$

$V_c=420\text{m/min}$, $f_z=0.12\text{mm/z}$, $a_p=0.35\text{mm}$

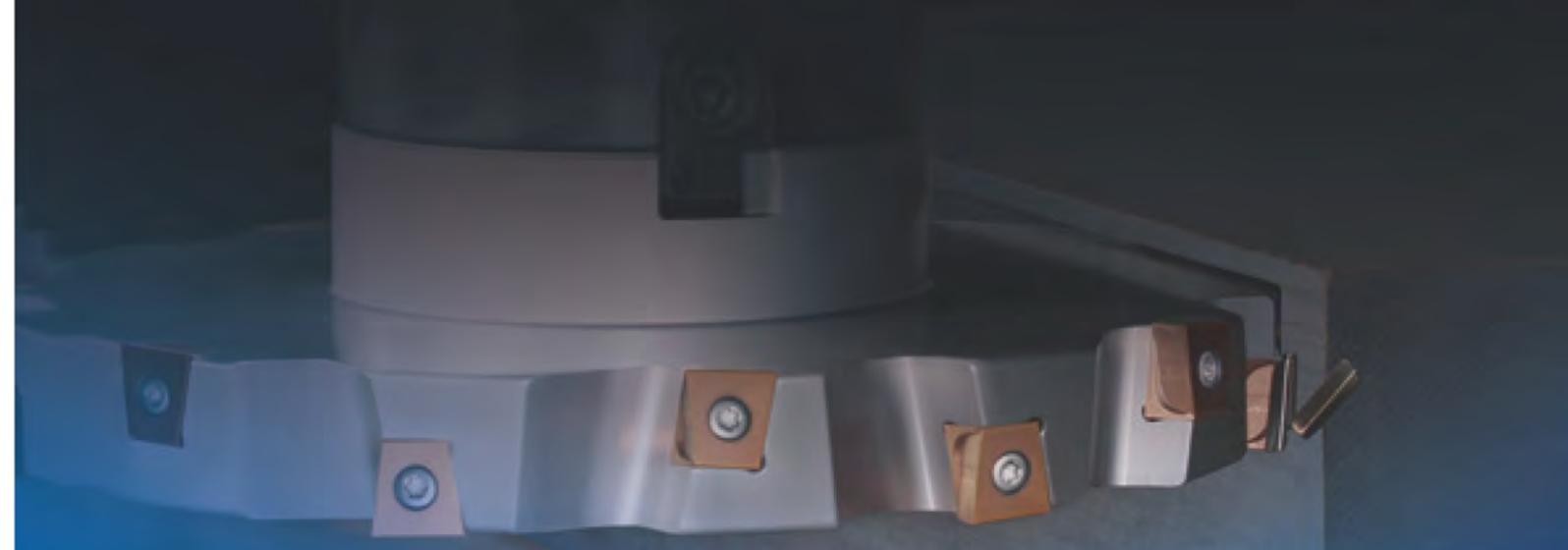
Application results





SMP05

Slot Milling Tools

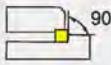
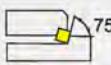
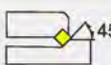
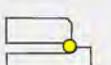


*Side and Face
Milling Tools* **SMP08**
SMP09



Indexable milling tools code key

Cutter type	
FM	Face milling
EM	Square shoulder milling
HM	Helical end milling
SM	Side and face milling
BM	Profile milling
CM	Chamfer milling
XM	Special milling
TM	T-slot milling
AM	Aluminum alloy high speed milling

Approach angle		
P	90°	
E	75°	
D	60°	
A	45°	
R		

Series code

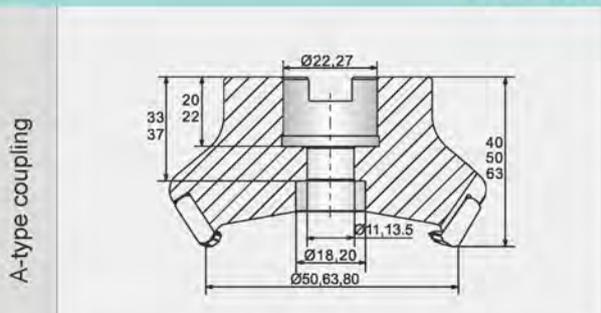
Cutting diameter ØD
Side and face milling tool: diameter X cutting edge width

Coupling structurebe (see below)			
A	A-type coupling	XP	Weldon shank
B	B-type coupling	G	Straight shank
C	C-type coupling	MW	Morse adapter with a conical hole and without a flat tail
D	D-type coupling		

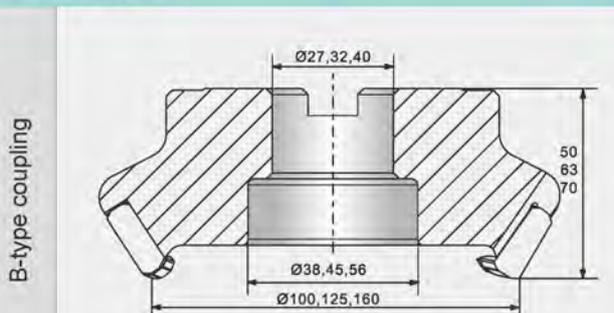
Coupling size(mm)
(see below)

FM E 03 - 100 - B 32

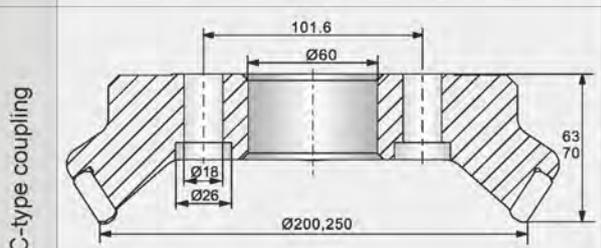
Coupling structure of arbor



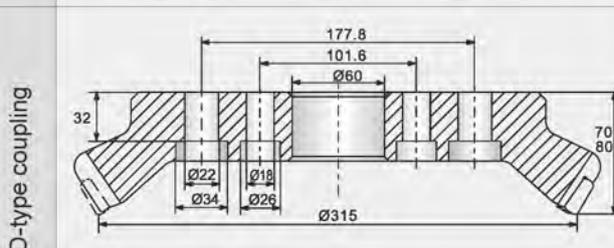
Ø50- Ø80 arbor face milling cutter as per GB5342-96



Ø100- Ø160 arbor face milling cutter as per GB5342-96



Ø200- Ø250 arbor face milling cutter as per GB5342-96



D≥Ø315 arbor face milling cutter as per GB5342-96

For coupling methods of Weldon shank, straight shank and Morse taper shank, etc., see technical information of tooling systems.

Indexable milling tools
Indexable milling tools code key

Insert shape	
 C	 D
 R	 S
 T	 L
 H	 O

Insert clearance angle	
N	0°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°

Diameter of insert's inscribed circle	Length of cutting edge					
	C	D	R	S	T	L
5.556	—	—	—	—	09	—
6.350	06	07	—	—	11	—
9.525	09	11	09	09	16	—
12.700	12	15	12	12	22	—
15.875	16	19	15	15	27	—
19.050	19	—	19	19	33	—
25.400	25	—	25	25	44	2



S **P** **12** - **06** **L** **C**

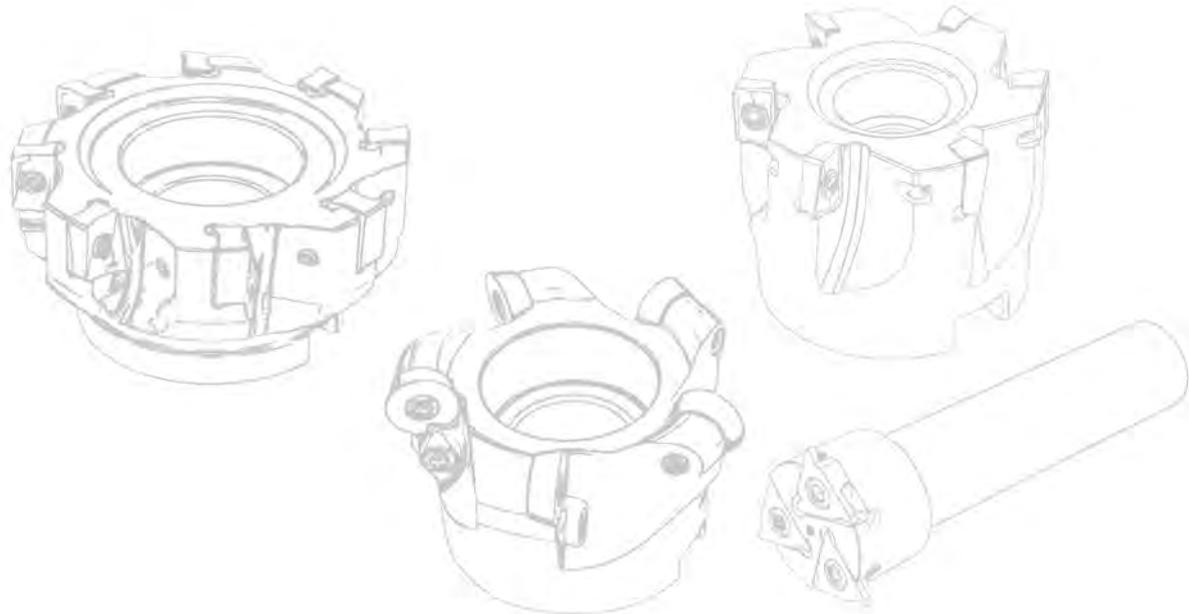
Number of teeth
(number of flute in the case of helical end mills)

L **C**

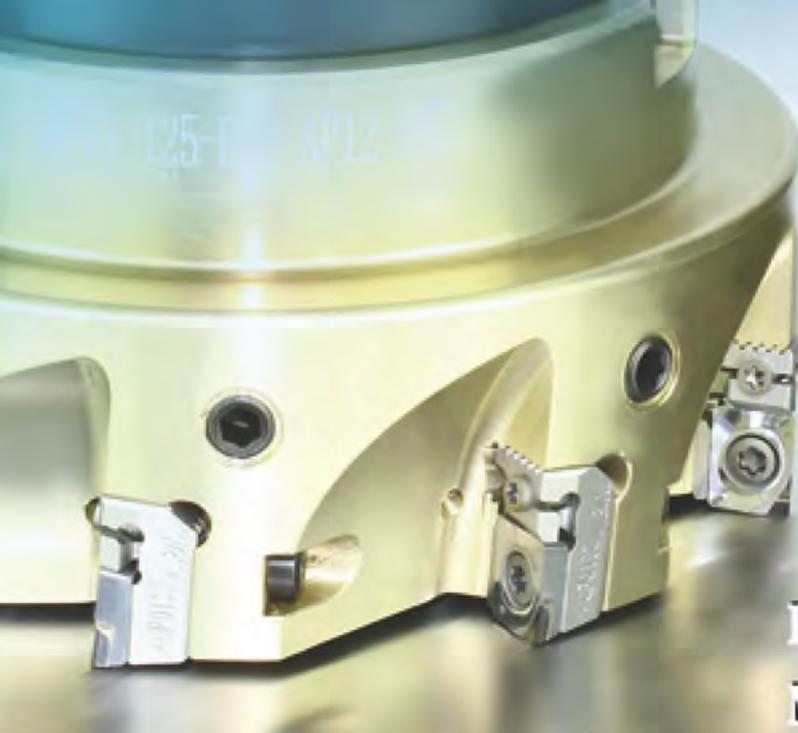
Cutting direction
(R: Right L: Left R style as the default)

C

Internal cooling structure

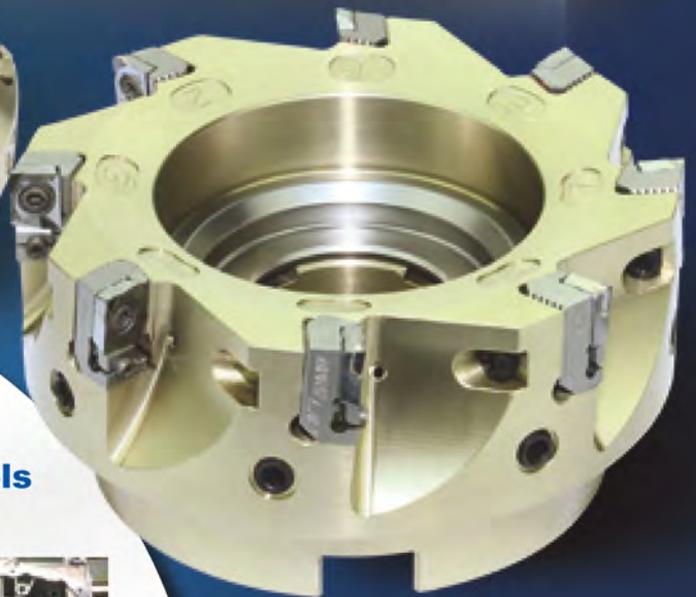
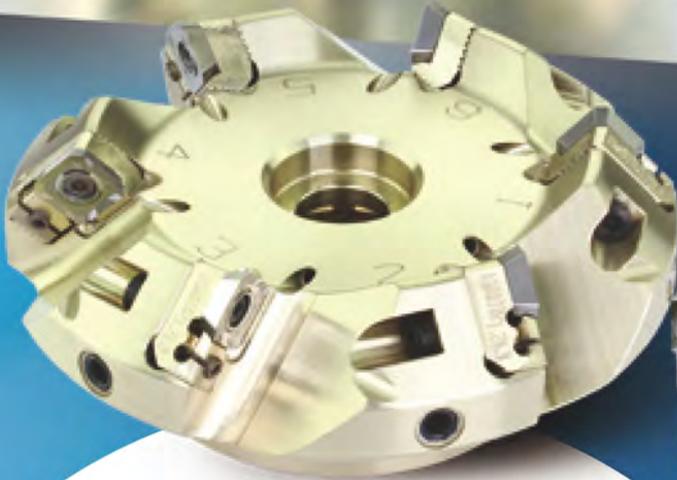


Indexable milling tools code key



AMA01 AMP01 Series

High-speed and High-precision
Milling Tools



Machining case of AMP01 series high-speed high-precision milling tools

Area of machining: Bottom surface of cylinder housing

Machine: Machining center

Coolant: Internal

Workpiece material: Aluminum alloy (HB 110)

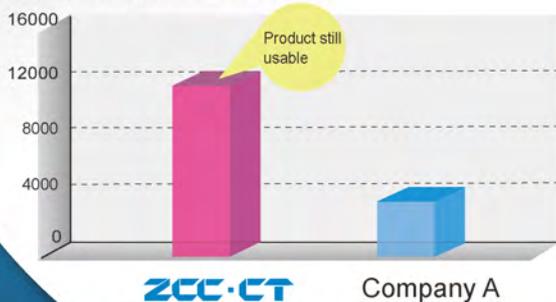
Operation: Face milling

Cutting data: $n = 11141 \text{ r/min}$, $f_z = 0.1 \text{ mm/z}$



● Comparison of tool life

Number of workpiece machined(pieces)



Results:

ZCC-CT: 12000 pcs
(Still usable)

Product of company A: 3500 pcs



High-speed and high-precision milling tools

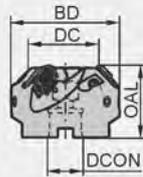
KAPR:45°



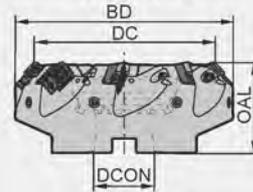
AMA01 N K H



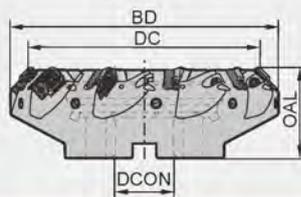
A-type coupling



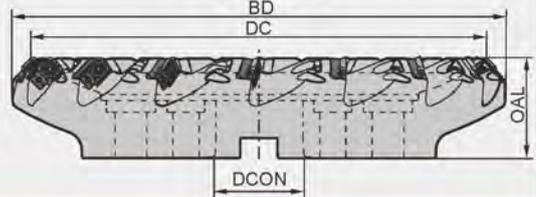
B-type coupling



C-type coupling



D-type coupling



Specification of tools

Type	Stock		Basic dimensions(mm)				Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	BD	DCON	OAL			
AMA01 -050-A22-SE12-03C	▲	△	50	64	22	40	3	A	0.17
-063-A27-SE12-04C	▲	△	63	77	27	40	4	A	0.27
-080-A27-SE12-05C	▲	△	80	94	27	50	5	A	0.49
-100-A32-SE12-06C	▲	△	100	114	32	50	6	A	0.84
-125-B40-SE12-08C	▲	△	125	139	40	63	8	B	1.20
-160-B40-SE12-10C	▲	△	160	173	40	63	10	B	2.11
-160-C40-SE12-10C	▲	△	160	173	40	63	10	C	2.15
-200-C60-SE12-12C	▲	△	200	213	60	63	12	C	3.36
-250-C60-SE12-14C	▲	△	250	263	60	63	14	C	4.96
-315-D60-SE12-16	▲	△	315	328	60	80	16	D	8.68
-400-D60-SE12-18	△	△	400	413	60	80	18	D	10.1
-500-D60-SE12-20	△	△	500	513	60	80	20	D	14.3

▲Stock available △Make-to-order

Cutter with a diameter of 250mm or more have no internal cooling, and cutter with a diameter of 200mm or more have no dynamic balance. Type A and Type B connectors are equipped with internal cooling screws.

Spare parts

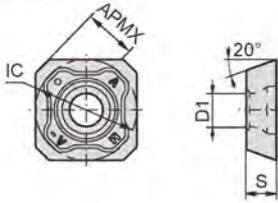
Diameter DC	Locator screw	Balancing screw	Adjusting screw	Insert screw	Locator	Wrench	Wrench	
Ø50	M4×12-TP	M8×8(GB77-85)	I20M3×10X	I60M4×8.4	AMA0101	WT15IP	WT09P	
Ø63								
Ø80								
Ø100-Ø160		M8×12(GB77-85)			AMA0102	WT15IS		
Ø200		--						
Ø250-Ø500		--				AMA0103		

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

Selection of inserts



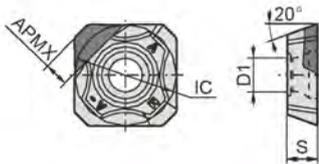
😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	H High hardness materials			🙄
	K Cast iron		😊	😞
	N Non-ferrous metal	🙄		🙄

Insert shape	Type	Basic dimensions(mm)				PCD	PCBN		Cemented carbide
		IC	S	D1	APMX		YCB011	YCB012	
	SEHT12T3AFFN-AL	12.7	3.97	4.4	6.6				★

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Selection of inserts



😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	H High hardness materials			🙄
	K Cast iron		😊	😞
	N Non-ferrous metal	🙄		🙄

Insert shape	Type	Basic dimensions(mm)				PCD	PCBN		Cemented carbide
		IC	S	D1	APMX		YCB011	YCB012	
	SEHT12T308AFFN-PCD	12.7	3.97	4.4	2.5	★			
	SEHT12T308AFFN-CBN	12.7	3.97	4.4	2		○	○	

CBN insert edge can be treated as per machining requirements ★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Recommended cutting parameters

Workpiece material	Insert material	Cutting parameters	
		V(m/min)	f _z (mm/z)
N Aluminum alloy (Si content ≤ 12%)	YCD011	1500(800-3000)	0.1(0.08-0.3)
	YD201	600(300-1000)	0.15(0.05-0.3)
K Cast iron	YCB011	800(500-1200)	0.2(0.1-0.5)
H Hardened steel	YCB012	150(100-500)	0.15(0.1-0.5)

High-speed and high-precision milling tools

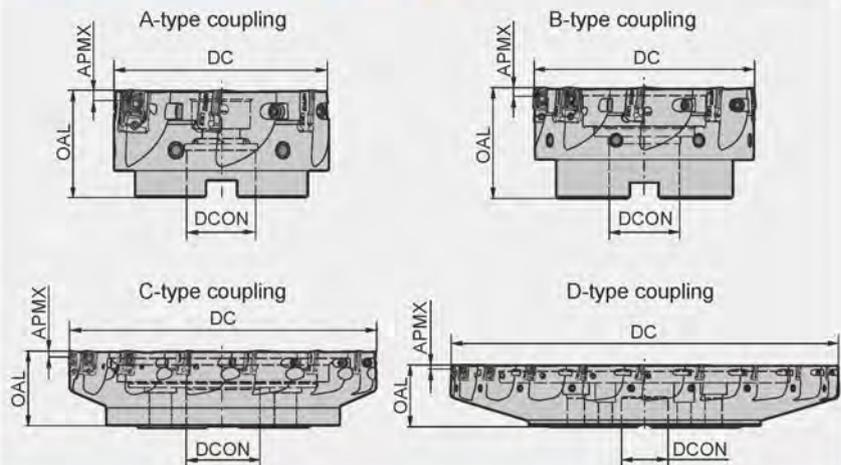
KAPR:90°



AMP01 **N** **K** **H**



Close even pitch



Specification of tools

Type	Stock		Basic dimensions(mm)			Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCON	OAL			
AMP01 -050-A22-AP12-03C	▲	△	50	22	40	3	A	0.17
-063-A27-AP12-05C	▲	△	63	27	40	5	A	0.27
-080-A27-AP12-06C	▲	△	80	27	50	6	A	0.49
-100-A32-AP12-06C	▲	△	100	32	50	6	A	0.84
-125-B40-AP12-08C	▲	△	125	40	63	8	B	1.20
-160-B40-AP12-10C	▲	△	160	40	63	10	B	2.11
-160-C40-AP12-10C	▲	△	160	40	63	10	C	2.15
-200-C40-AP12-12C	▲	△	200	60	63	12	C	3.36
-250-C60-AP12-14C	▲	△	250	60	63	14	C	4.96
-315-D60-AP12-16	▲	△	315	60	80	16	D	8.68
-400-D60-AP12-18	△	△	400	60	80	18	D	10.1
-500-D60-AP12-20	△	△	500	60	80	20	D	14.3

▲Stock available △Make-to-order

Cutter with a diameter of 250mm or more have no internal cooling, and cutter with a diameter of 200mm or more have no dynamic balance. Type A and Type B connectors are equipped with internal cooling screws.

Spare parts

Diameter DC	Locator screw	Balancing screw	Adjusting screw	Insert screw	Locator	Wrench	Wrench
Ø50-Ø63	M4×12-TP	M8×8(GB77-85)	I20M3×10X	I60M4×8.4	AMP0101	WT151P	WT09P
Ø80-Ø160		M8×12(GB77-85)			AMP0102	WT151S	
Ø200		--			AMP0103		
Ø250-Ø500		--					

Tools code key B26-B27

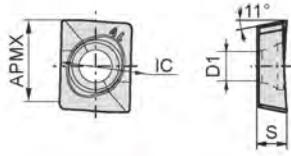
Grade selection guide B19-B23

Technical data B271-B276

Indexable milling tools

High-speed and high-precision milling tools

Selection of inserts



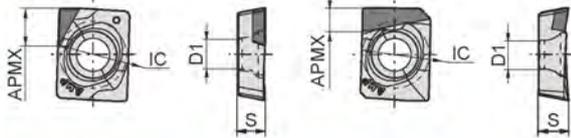
😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	H High hardness materials			🙄
	K Cast iron		😊	😞
	N Non-ferrous metal	😊		🙄

Insert shape	Type	Basic dimensions(mm)				PCD	PCBN		Cemented carbide
		IC	S	D1	APMX		YCB011	YCB012	
	APHT12T304PPFR-AL	12.7	3.97	4.4	12				★

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Selection of inserts



😊 Good working condition 🙄 Normal working condition 😞 Bad working condition

Workpiece material	H High hardness materials			🙄
	K Cast iron		😊	😞
	N Non-ferrous metal	😊		🙄

Insert shape	Type	Basic dimensions(mm)				PCD	PCBN		Cemented carbide
		IC	S	D1	APMX		YCB011	YCB012	
	APHT12T304PPFR-PCD	12.7	3.97	4.4	3	★			
	APHT12T304PPFR-CBN	12.7	3.97	4.4	2		○	○	
	APHT12T304-W	12.7	3.97	4.4	1	★	★	★	

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Recommended cutting parameters

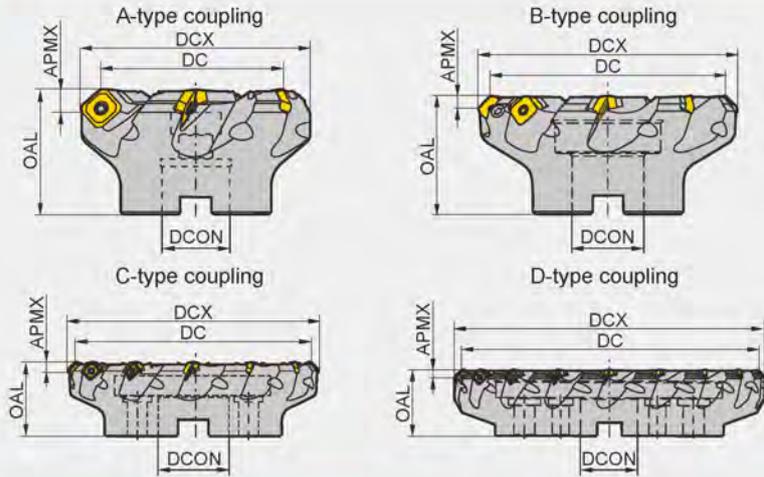
Workpiece material	Insert material	Cutting parameters	
		V(m/min)	f _z (mm/z)
N Aluminum alloy (Si content ≤ 12%)	YCD011	1500(800-3000)	0.1(0.08-0.3)
	YD201	600(300-1000)	0.15(0.05-0.3)
K Cast iron	YCB011	800(500-1200)	0.2(0.1-0.5)
H Hardened steel	YCB012	150(100-500)	0.15(0.1-0.5)

Face milling tools

KAPR:45°



FMA01 P M K N S



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
	R	L	DC	DCX	DCON	OAL	APMX				
FMA01 Coarse pitch	-050-A22-SE12-04	▲	△	50	61	22	40	6	4	A	0.3
	-063-A22-SE12-05	▲	△	63	74	22	40	6	5	A	0.5
	-080-A27-SE12-06	▲	△	80	91	27	50	6	6	A	1.2
	-100-B32-SE12-07	▲	△	100	107	32	50	6	7	B	1.52
	-125-B40-SE12-08	▲	△	125	136	40	63	6	8	B	2.6
	-160-B40-SE12-07	▲	△	160	174	40	63	6	7	B	4.548
	-160-B40-SE12-10	▲	△	160	170	40	63	6	10	B	4.92
	-200-C60-SE12-08	▲	△	200	214	60	63	6	8	C	6.175
	-200-C60-SE12-12	▲	△	200	210	60	63	6	12	C	7.6
	-250-C60-SE12-10	▲	△	250	264	60	63	6	10	C	12.596
	-250-C60-SE12-14	▲	△	250	260	60	63	6	14	C	13.5
	-315-D60-SE12-18	▲	△	315	325	60	70	6	18	D	20.8
	-100-B32-SE18-04	▲	△	100	120	32	63	10.4	4	B	2.22
	-125-B40-SE18-05	▲	△	125	145	40	63	10.4	5	B	3.15
-160-B40-SE18-06	▲	△	160	180	40	63	10.4	6	B	5.01	
-200-C60-SE18-08	▲	△	200	220	60	63	10.4	8	C	6.9	
-250-C60-SE18-10	▲	△	250	270	60	63	10.4	10	C	13.1	
-315-D60-SE18-12	▲	△	315	335	60	80	10.4	12	D	24.5	

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Shim	Shim screw	Wrench	Wrench	
Ø50-Ø315	SEET12□□-	I60M3.5×12	S13BS	SM5×7XA	WT15IS	WH35L	
Ø100-Ø315	SEET18□□-	I60M5×17	S18BS	SM8×9XA	WT20IT	WH50L	

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

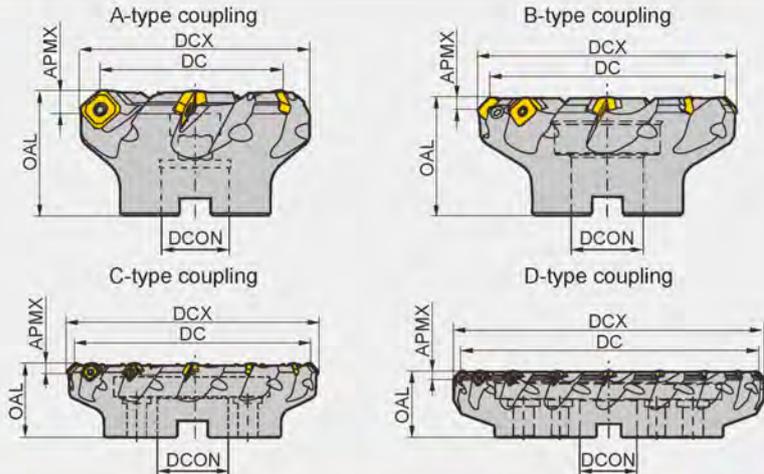
Indexable milling tools
Face milling tools

Face milling tools

KAPR:45°



FMA01 P M K N S



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
	R	L	DC	DCX	DCON	OAL	APMX				
FMA01 Close pitch	-050-A22-SE12-05	▲	△	50	63	22	40	6.0	5	A	0.427
	-063-A22-SE12-06	▲	△	63	74	22	40	6.0	6	A	0.771
	-080-A27-SE12-08	▲	△	80	93	27	50	6.0	8	A	1.37
	-100-B32-SE12-10	▲	△	100	114	32	50	6.0	10	B	1.755
	-125-B40-SE12-12	▲	△	125	136	40	63	6.0	12	B	3.666
	-160-B40-SE12-16	▲	△	160	174	40	63	6.0	16	B	5.21
	-200-C60-SE12-20	▲	△	200	214	60	63	6.0	20	C	9.32
	-250-C60-SE12-24	▲	△	250	264	60	63	6.0	24	C	15.892
	-100-B32-SE18-06	▲	△	100	114	32	63	10.4	6	B	2.98
	-125-B40-SE18-07	▲	△	125	144	40	63	10.4	7	B	3.803
	-200-C60-SE18-12	▲	△	200	220	60	63	10.4	12	C	7.191
	-250-C60-SE18-14	▲	△	250	265	60	63	10.4	14	C	14.9

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Shim	Shim screw	Wrench	Wrench
Ø50-Ø315	SEET12□□-	I60M3.5×12	S13BS	SM5×7XA	WT15IS	WH35L
Ø100-Ø315	SEET18□□-	I60M5×17	S18BS	SM8×9XA	WT20IT	WH50L



Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters				
			V(m/min)	f(mm/z)			
				-DF	-DM	-DR	
P	Low-carbon steel, Soft steel	YBM253 YBC302	270(220-350)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)	
		YBG205 YB9320	270(200-360)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)	
		YBG302 YBM253	230(170-350)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)	
	High-carbon steel, Alloy steel	180-280	YBM253 YBC302	240 (200-320)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
			YBG205 YB9320	240 (180-350)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
			YBG302 YBM253	220 (150-330)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
	Alloy tool steel	280-350	YBM253 YBC302	220 (180-300)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
			YBG205 YB9320	220 (170-340)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
			YBG302 YBM253	190 (130-300)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
M	Stainless steel	≤270		-EF	-EM		
			YBM252	150 (120-240)	0.15(0.1-0.2)	0.2 (0.1-0.3)	
			YBG205 YB9320	160 (110-270)	0.15(0.1-0.2)	0.2 (0.1-0.3)	
			YBG302	140 (100-250)	0.15(0.1-0.2)	0.2 (0.1-0.3)	
K	Cast iron	180-250		-CF	-CM	-CR	
			YBG105	210 (120-300)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
			YBD152	240 (180-300)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3(0.2-0.4)
N	Al alloy steel	--		-LH			
			YD101	300-	0.25 (0.1-0.4)		
			YD201	300-	0.25 (0.1-0.4)		
S	High-temperature alloy	≤400		-EF	-EM		
			YBG105	50(20-60)	0.1 (0.1-0.2)	0.15 (0.1-0.3)	

Case for FMA01



Workpiece material: 1Cr18Ni9Ti (HB180)
 Cooling system: Dry cutting
 Machine: Vertical machining center
 Cutting parameters: $V_c=160\text{m/min}$
 $a_p=1\text{mm}$
 $f_z=0.2\text{mm/z}$
 $a_e=60\text{mm}$

Tool type: FMA01-080-A27-SE12-06

Insert type/grade: SEET12T3-EM/YBG302

Surface roughness of workpiece:

ZCC-CT: Ra1.2

Similar overseas products:
 Ra1.6

Comparison of insert abrasion

ZCC-CT

Similar overseas products

17'30"



29'30"



33'30"



Indexable milling tools

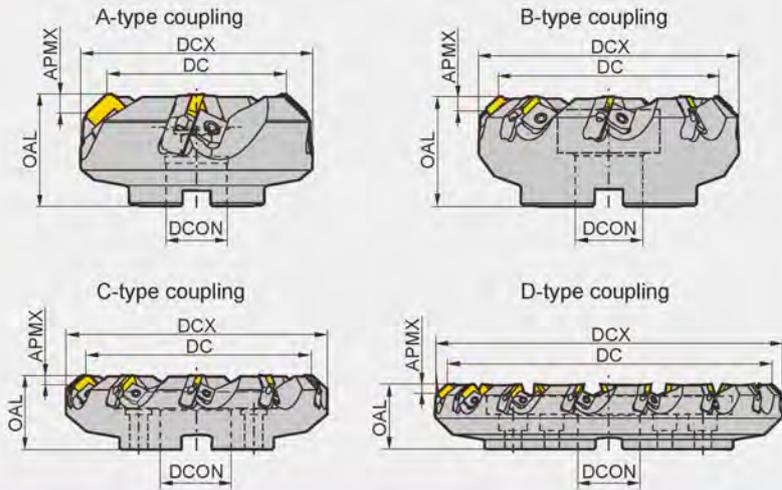
Face milling tools

Face milling tools

KAPR:45°



FMA03 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FMA03 -080-A27-SE12-04	▲	△	80	103	27	50	5.5	4	A	1.8
-100-B32-SE12-05	▲	△	100	122	32	50	5.5	5	B	2.4
-125-B40-SE12-06	▲	△	125	147	40	63	5.5	6	B	4.4
-160-B40-SE12-08	▲	△	160	181	40	63	5.5	8	B	6.4
-200-C60-SE12-10	▲	△	200	221	60	63	5.5	10	C	8.5
-250-C60-SE12-12	▲	△	250	270	60	63	5.5	12	C	14.1
-315-D60-SE12-15	△	△	315	353	60	63	5.5	15	D	22.2
-080-A27-SE15-04	▲	△	80	103	27	50	7.5	4	A	1.7
-100-B32-SE15-05	▲	△	100	122	32	50	7.5	5	B	2.3
-125-B40-SE15-06	▲	△	125	147	40	63	7.5	6	B	4.2
-160-B40-SE15-08	▲	△	160	181	40	63	7.5	8	B	6.1
-200-C60-SE15-10	▲	△	200	221	60	63	7.5	10	C	8.3
-250-C60-SE15-12	▲	△	250	270	60	63	7.5	12	C	13.6
-315-D60-SE15-15	▲	△	315	353	60	63	7.5	15	D	21.8

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80-Ø315	SE12	LSE12R/L	W05R/L	DM8×21X	LOM5×15.1	WT20T WH40T
Ø80-Ø315	SE15	LSE15R/L	W01R/L			

Tools code key

B26-B27

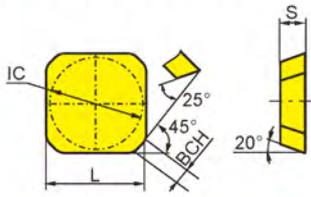
Grade selection guide

B19-B23

Technical data

B271-B276

Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

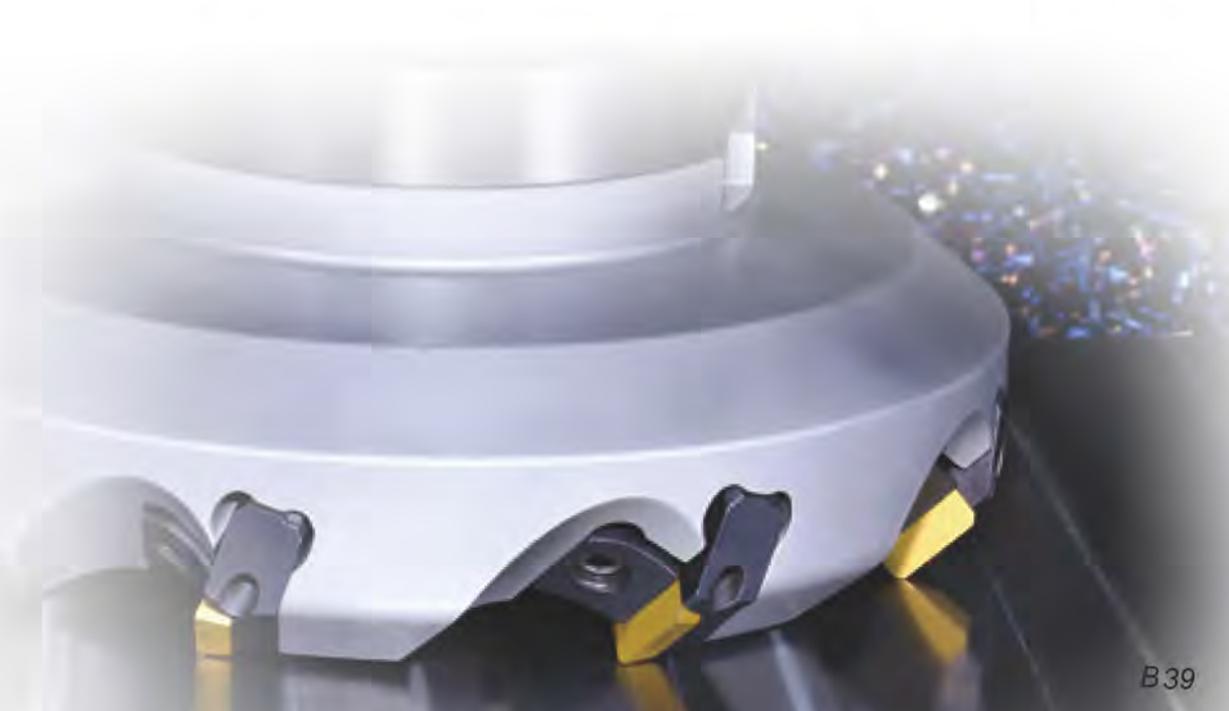
Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy, Ti alloy
P	😊😊	😊😊	😊😊	😊😊	😊😊
M	😊😊	😊😊	😊😊	😊😊	😊😊
K	😊😊	😊😊	😊😊	😊😊	😊😊
N	😊😊	😊😊	😊😊	😊😊	😊😊
S	😊😊	😊😊	😊😊	😊😊	😊😊

Insert shape	Type	Basic dimensions(mm)				CVD Coating					PVD Coating			Cermet	Cemented carbide						
		L	IC	S	BCH	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201
	SEEN1203AFTN	12.7	12.7	3.18	1.8						○							●			
	SEKN1203AFFN	12.7	12.7	3.18	1.8						★										
	SEKN1203AFN	12.7	12.7	3.18	1.8	●					○										
	SEKN1203AFTN	12.7	12.7	3.18	1.8	★	★	●			★	★						●			
	SEMR1203AN-M	12.7	12.7	3.3	-							●									
	SEKR1203AN-M	12.7	12.7	3.3	-							●									
	SEKN1504AFN	15.875	15.875	4.76	1.6	●	●														
	SEKN1504AFTN	15.875	15.875	4.76	1.6	★	★						★	●							
	SEMR1504AN-M	15.875	15.875	4.9	-							●									
	SEKR1504AN-M	15.875	15.875	4.9	-							●									

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Indexable milling tools

Face milling tools



➤ Recommended cutting parameters

	Workpiece material	Hardness HB	Insert grade	Cutting parameters	
				V(m/min)	f(mm/z)
P	Low-carbon steel, Soft steel	≤180	YNG151	430 (340-500)	0.2 (0.1-0.4)
			YBM253 YBC302	270 (220-350)	0.2 (0.1-0.4)
			YBM253	220 (180-300)	0.25 (0.15-0.3)
			YBG202 YBG302	270 (200-360)	0.2 (0.1-0.3)
	High-carbon steel, Alloy steel	180-280	YNG151	400 (320-480)	0.2 (0.1-0.4)
			YBM253 YBC302	240 (200-320)	0.2 (0.1-0.4)
			YBM253	200 (160-280)	0.25 (0.15-0.3)
			YBG202 YBG302	240 (180-350)	0.2 (0.1-0.3)
	Alloy tool steel	280-350	YNG151	350 (300-450)	0.2 (0.1-0.4)
			YBM253 YBC302	220 (180-300)	0.2 (0.1-0.4)
			YBM253	180 (150-250)	0.25 (0.15-0.3)
			YBG202 YBG302	220 (170-340)	0.2 (0.1-0.3)
M	Stainless steel	≤270	YNG151	220 (160-280)	0.2 (0.1-0.4)
			YBM253	130 (100-220)	0.2 (0.1-0.4)
			YBG202 YBG302	140 (100-250)	0.2 (0.1-0.3)
K	Cast iron	180-250	YBG105	210 (120-300)	0.2 (0.1-0.3)
			YBD252	200 (150-250)	0.2 (0.1-0.4)
			YD201	100 (80-160)	0.25 (0.1-0.4)

Indexable
milling tools

Face milling tools

Face milling tools

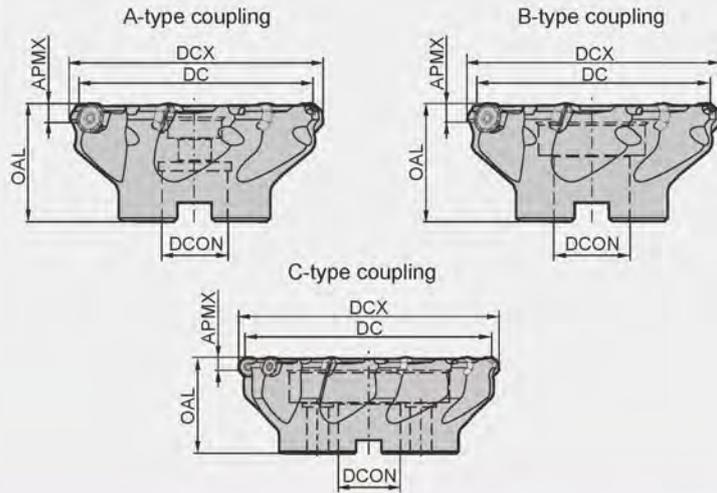
KAPR:45°



FMA04 P M K N



Screw clamping



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FMA04 -050-A22-OF05-04	▲	△	50	56	22	40	3.5	4	A	0.3
-050-A22-OF05-05	△	△	50	56	22	40	3.5	5	A	0.4
-063-A22-OF05-05	▲	△	63	69	22	40	3.5	5	A	0.5
-080-A27-OF05-06	▲	△	80	86	27	50	3.5	6	A	0.8
-100-B32-OF05-07	▲	△	100	106	32	50	3.5	7	B	1.2
-125-B40-OF05-08	▲	△	125	130	40	63	3.5	8	B	2.7
-160-B40-OF05-10	▲	△	160	165	40	63	3.5	10	B	5.1
-160-C40-OF05-10	△	△	160	165	40	63	3.5	10	C	4.1

▲Stock available △Make-to-order

Indexable milling tools

Face milling tools

Spare parts

Diameter DC	Insert screw	Wrench	
	Ø50 - Ø63	I60M4×8.4	
Ø80 - Ø160	I60M4×10		

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters			
			V(m/min)	f(mm/z)		
				-DF	-DM	
P	Low-carbon steel, Soft steel	YBM253	270 (220-350)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	
		YBG202	270 (200-360)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	
		YBG302 YB9320	230 (170-350)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	
	High-carbon steel, Alloy steel	180-280	YBM253	240 (200-320)	0.15 (0.1-0.3)	0.2 (0.1-0.4)
			YBG202	240 (180-350)	0.15 (0.1-0.3)	0.2 (0.1-0.4)
			YBG302 YB9320	220 (150-330)	0.2 (0.1-0.3)	0.25 (0.1-0.4)
	Alloy tool steel	280-350	YBM253	220 (180-300)	0.15 (0.1-0.3)	0.2 (0.1-0.4)
			YBG202	220 (170-340)	0.15 (0.1-0.3)	0.2 (0.1-0.4)
			YBG302 YB9320	190 (130-300)	0.2 (0.1-0.3)	0.25 (0.1-0.4)
M	Stainless steel	YBG202	160 (110-270)	0.15 (0.1-0.3)	0.2 (0.1-0.4)	
		YBG302 YB9320	140 (100-250)	0.15 (0.1-0.3)	0.2 (0.1-0.4)	
		YBM253	150 (120-250)	0.15 (0.1-0.3)	0.2 (0.1-0.4)	
K	Cast iron	180-250	YBG105	210 (120-300)	0.2 (0.1-0.3)	0.25 (0.1-0.4)
N				-LH		
	Al alloy steel	-	YD101	300-	0.15 (0.05-0.3)	

Indexable milling tools
Face milling tools

Case for FMA04

Workpiece material: 42CrMo (HB280)
 Cooling system: Dry cutting
 Cutting machine tools: vertical machining center
 Tool: FMA04-100-B32-OF05-07
 Insert: OFKT05T3-DM/YBG202
 Cutting parameters: $V_c=180\text{m/min}$, $a_p=1\text{mm}$, $f_z=0.2\text{mm/z}$, $a_e=60\text{mm}$



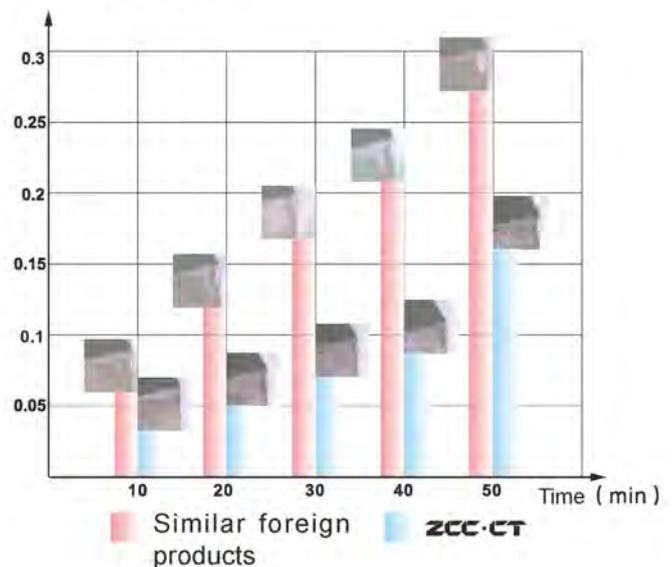
Surface roughness of workpiece being processed:

ZCC-CT: Ra1.2

Similar foreign products: Ra1.6

Insert wear comparison

Flank wear VB(mm)



Face milling tools

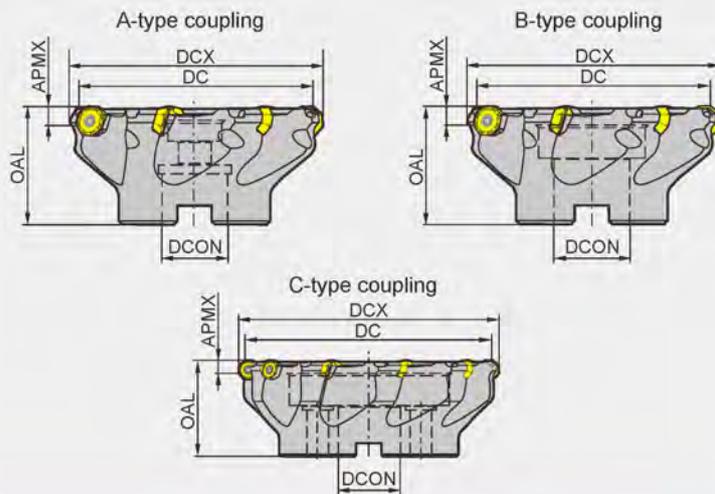
KAPR:45°



FMA04 P M K N S



Screw clamping



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
	R	L	DC	DCX	DCON	OAL	APMX				
FMA04 Coarse pitch	-050-A22-OD06-04C	▲	△	50	60	22	40	4	4	A	0.284
	-063-A22-OD06-05C	▲	△	63	73	22	40	4	5	A	0.409
	-080-A27-OD06-06C	▲	△	80	90	27	50	4	6	A	1.017
	-100-A32-OD06-07C	▲	△	100	110	32	50	4	7	A	1.536
	-125-B40-OD06-08	▲	△	125	135	40	63	4	8	B	2.931
	-160-C40-OD06-10	▲	△	160	170	40	63	4	10	C	3.838
Close pitch	-050-A22-OD06-05C	▲	△	50	60	22	40	4	5	A	0.298
	-063-A22-OD06-06C	▲	△	63	73	22	40	4	6	A	0.425
	-080-A27-OD06-07C	▲	△	80	90	27	50	4	7	A	1.025
	-100-A32-OD06-09C	▲	△	100	110	32	50	4	9	A	1.521
	-125-B40-OD06-10	▲	△	125	135	40	63	4	10	B	2.919
	-160-C40-OD06-12	▲	△	160	170	40	63	4	12	C	3.825

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert screw	Wrench	
Ø50-Ø63	I60M5×13	WT20IP	
Ø80-Ø125		WT20IS	
Ø160		WT20IT	

Tools code key

B26-B27

Grade selection guide

B19-B23

Technical data

B271-B276

HURRICANE

FMA07

Milling Tool Series

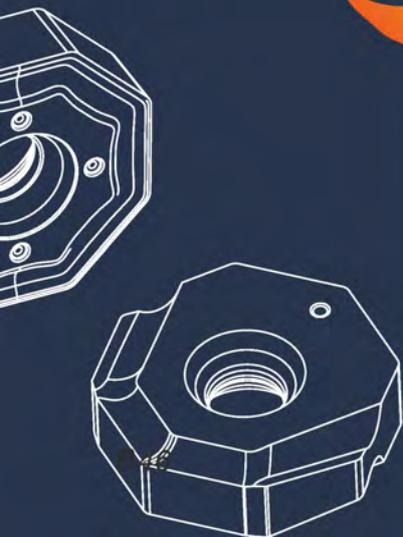
New Generation of High Economy
Milling Tools



16 cutting edges
high economy

8x2=16 edges

- Double negative rake angle structure, both axial and radial direction, super thick insert with outstanding toughness.
- Has good wiper capability, especially under the high feed rate, the wiper effect is better in comparison with similar tools.
- The unique hole design makes the insert clamp more secured.
- Tool diameters from 25 to 315mm and 3 geometries available, -PF, -PM and -W (wiper).

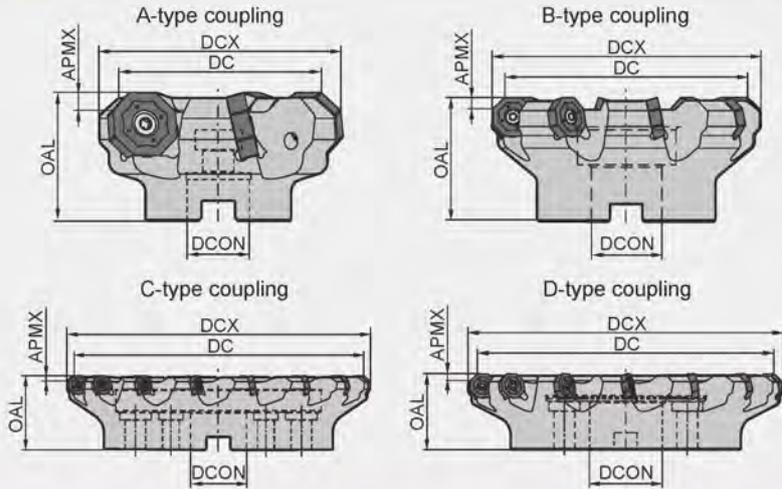


Face milling tools

KAPR:45°



FMA07 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FMA07 -050-A22-ON06-05	▲	△	50	62	22	40	4	5	A	0.3
-063-A22-ON06-06	▲	△	63	75	22	40	4	6	A	0.5
-080-B27-ON06-07	▲	△	80	92	27	50	4	7	B	1.0
-100-B32-ON06-08	▲	△	100	112	32	63	4	8	B	1.9
-125-B40-ON06-09	▲	△	125	137	40	63	4	9	B	3.5
-160-C40-ON06-11	▲	△	160	172	40	63	4	11	C	4.3
-200-C60-ON06-13	▲	△	200	212	60	63	4	13	C	6.4
-250-C60-ON06-15	▲	△	250	262	60	63	4	15	C	13.4
-315-D60-ON06-17	▲	△	315	327	60	80	4	17	D	21.9
-063-A22-ON08-05	▲	△	63	78	22	40	5	5	A	0.5
-080-B27-ON08-06	▲	△	80	95	27	50	5	6	B	0.9
-100-B32-ON08-07	▲	△	100	115	32	50	5	7	B	1.8
-125-B40-ON08-08	▲	△	125	140	40	63	5	8	B	3.1
-160-C40-ON08-10	▲	△	160	175	40	63	5	10	C	4.1
-200-C60-ON08-12	▲	△	200	215	60	63	5	12	C	6.1
-250-C60-ON08-14	▲	△	250	265	60	63	5	14	C	12.0
-315-D60-ON08-16	▲	△	315	330	60	80	5	16	D	21.0

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Insert screw	Wrench	
Ø50 -Ø315	ONHU06□□□□-PF/PM	I60M4×10	--	WT15JS
Ø63 -Ø315	ONHU08□□□□-PF/PM/W	I60M5×13	WT20IT	--

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

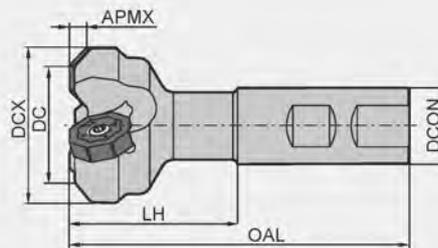
Indexable milling tools
Face milling tools

Face milling tools

KAPR:45°



FMA07 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)						Number of teeth Z	Weight (kg)
	R	L	DC	DCX	DCON	OAL	LH	APMX		
FMA07 -025-XP20-ON06-02	▲	△	25	37	20	95	45	4	2	0.2
-040-XP25-ON06-03	▲	△	40	52	25	106	50	4	3	0.4
-032-XP25-ON08-02	▲	△	32	47	25	111	55	5	2	0.4
-040-XP25-ON08-03	▲	△	40	55	25	111	55	5	3	0.5
-050-XP25-ON08-04	▲	△	50	65	25	111	55	5	4	0.6

▲ Stock available △ Make-to-order

Indexable milling tools
Face milling tools

Spare parts

Diameter DC	Inserts	Insert screw	Wrench	
Ø25-Ø40	ONHU06□□□□-PF/PM	I60M4×10	--	WT15IS
Ø32-Ø50	ONHU08□□□□-PF/PM	I60M5×13	WT20IT	--



Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

Case for FMA07



Part: Gear pump body
 Workpiece material: HT400
 Hardness: HRC22
 Cooling system: Dry cutting
 Machine: Vertical machining center
 Cutting parameters: $V_c=267\text{m/min}$
 $a_p=1.5\text{mm}$
 $f_z=0.42\text{mm/z}$
 $a_e=80\text{mm}$
 Milling style: Down milling
 Area of machining: End surface

Tool type: FMA07-100-B32-ON08-07

Insert type/grade: ONHU08T508-PM/YBD152



Comparison of insert abrasion

Abrasion on rake face



ZCC-CT



similar product of company A

Abrasion on clearance face



ZCC-CT



similar product of company A

Indexable milling tools
Face milling tools

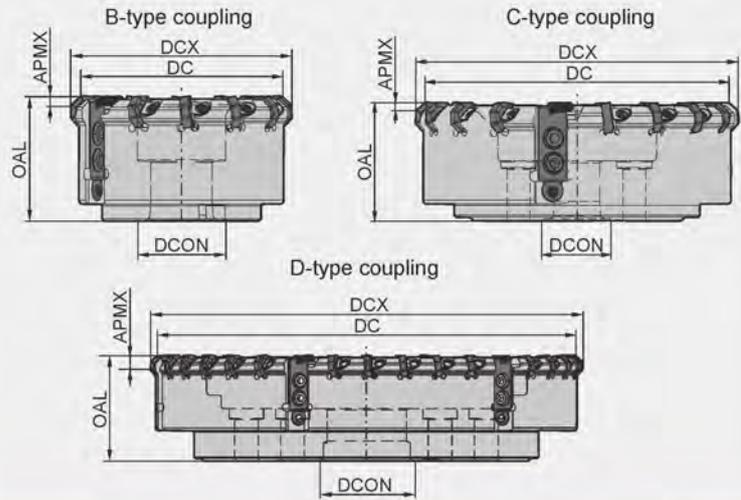
Face milling tools

KAPR:45°



Face milling

FMA08 **K**



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		DC	DCX	DCON	OAL	APMX			
FMA08 -100-B32-ON06-12W2	▲	100	111.1	32	63	1.0	10+2	B	3
-125-B40-ON06-15W3	▲	125	136.1	40	63	1.0	12+3	B	4.5
-160-C40-ON06-18W3	▲	160	171.1	40	63	1.0	15+3	C	6.8
-200-C60-ON06-24W4	▲	200	211.1	60	63	1.0	20+4	C	10.3
-250-C60-ON06-30W5	▲	250	261.1	60	63	1.0	25+5	C	15.1
-315-D60-ON06-36W6	▲	315	326.1	60	80	1.0	30+6	D	27.2

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Briquette	Screw	Wrench	Clamp	Clamp screw	Adjustment blocks	
Ø100-Ø315	ONHU060408-CM XEEC120904	W18N	DM6×20A	WT15IT WH50L	LOCATOR-XEEC12	M6×18(GB70-85)	ADJ01	

Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

Indexable milling tools

Face milling tools

FMA11 KAPR:45° Series

With Outstanding Economy and High Performance



4 × 2=8 edge

Cutter body with PVD coating for superior corrosion and heat resistance resulting in longer service life.



Comprehensive upgrading of -GM geometry, good chip breaking performance, large rake angle, reduced cutting force.

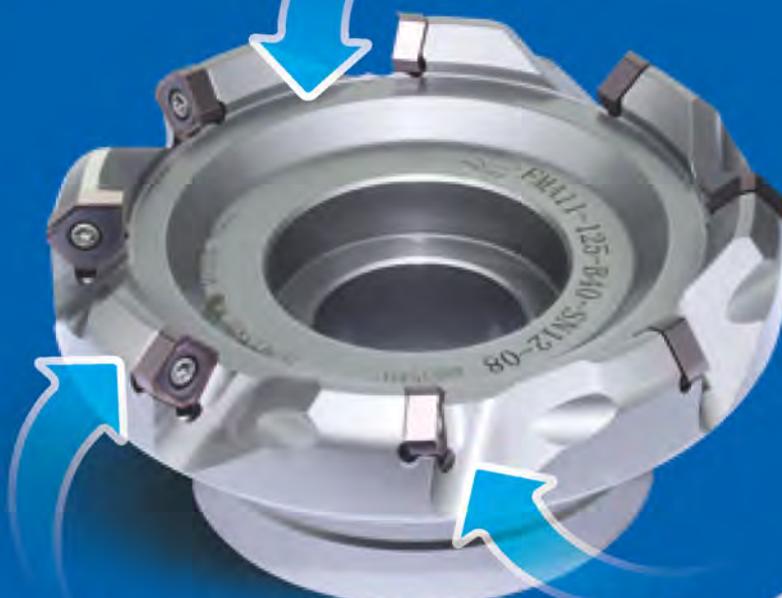


New -HGR geometry, high edge strength, excellent breakage resistance.



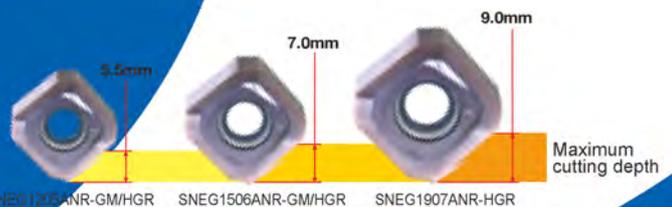
Insert with wiper, smoother surface roughness.

Complete range of insert specifications and geometries, for different cutting depths and different machining demands.



Double negative structure, excellent impact resistance.

Optimized design of pitch and chip pocket, for unobstructed chip flow, and higher cutting efficiency.



-W special wiper geometry, wiper designed with large arc to improve surface quality the workpiece.

Large effective wiper length, more suitable for semi-finishing/finishing of large-diameter cutter heads.

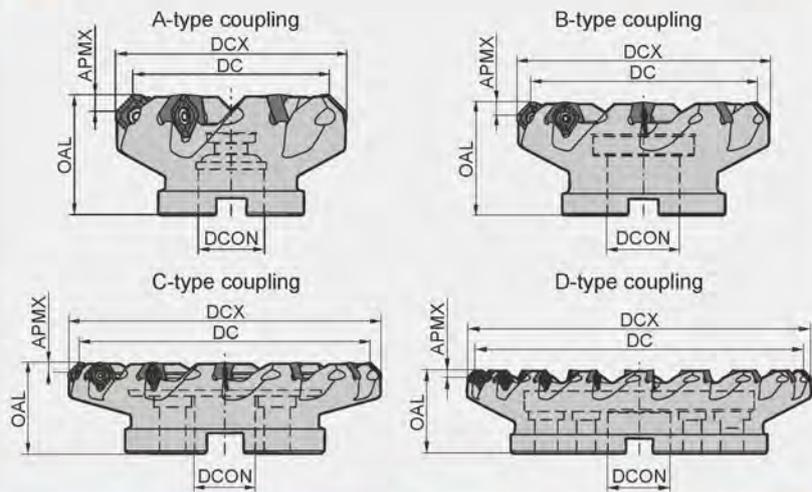


Face milling tools

KAPR:45°



FMA11 P K S



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		DC	DCX	DCON	OAL	APMX			
FMA11									
-063-A22-SN12-05C	▲	63	75.2	22	40	5.5	5	A	0.55
Coarse pitch									
-080-A27-SN12-06C	▲	80	92.2	27	50	5.5	6	A	1.14
-100-B32-SN12-07	▲	100	112.2	32	50	5.5	7	B	1.42
-125-B40-SN12-08	▲	125	137.2	40	63	5.5	8	B	2.86
-160-C40-SN12-10	▲	160	172.2	40	63	5.5	10	C	4.06
-063-A22-SN15-05C	▲	63	78.4	22	40	7.0	5	A	0.56
-080-A27-SN15-06C	▲	80	95.4	27	50	7.0	6	A	1.06
-100-B32-SN15-07	▲	100	115.4	32	50	7.0	7	B	1.47
-125-B40-SN15-08	▲	125	140.4	40	63	7.0	8	B	2.70
-160-C40-SN15-10	▲	160	175.4	40	63	7.0	10	C	3.92
-200-C60-SN15-12	▲	200	215.4	60	63	7.0	12	C	5.46
-250-C60-SN15-14	▲	250	265.4	60	63	7.0	14	C	11.26
-315-D60-SN15-18	▲	315	330.4	60	80	7.0	18	D	20.00
-125-B40-SN19-07	▲	125	144.4	40	63	9.0	7	B	3.00
-160-C40-SN19-09	▲	160	179.4	40	63	9.0	9	C	4.25
-200-C60-SN19-11	▲	200	219.4	60	63	9.0	11	C	6.18
-250-C60-SN19-13	▲	250	269.4	60	63	9.0	13	C	11.55
-315-D60-SN19-16	▲	315	334.4	60	80	9.0	16	D	20.90

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Insert screw	Wrench	
Ø63 - Ø160	SNEG1205ANR-GM/HGR/W	I60M3.5×10	--	WT15IS
Ø63 - Ø315	SNEG1506ANR-GM/HGR/W	I60M5×13	WT20IT	--
Ø125 - Ø315	SNEG1907ANR-HGR	I43M6×16	WT25IT	--



Tools code key

B26-B27

Grade selection guide

B19-B23

Technical data

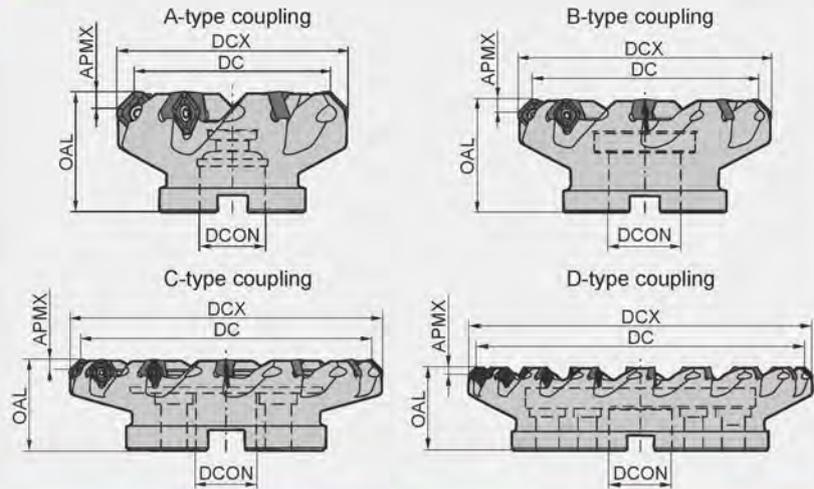
B271-B276

Face milling tools

KAPR:45°



FMA11 P K S



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
		DC	DCX	DCON	OAL	APMX				
FMA11 Close pitch	-063-A22-SN12-06C	▲	63	74.2	22	40	5.5	6	A	0.58
	-080-A27-SN12-08C	▲	80	91.9	27	50	5.5	8	A	1.16
	-100-B32-SN12-10C	▲	100	111.2	32	50	5.5	10	B	1.71
	-125-B40-SN12-12C	▲	125	136.2	40	63	5.5	12	B	3.29
	-160-C40-SN12-15	▲	160	171.6	40	63	5.5	15	C	4.40
	-063-A22-SN15-06C	▲	63	78.3	22	40	7.0	6	A	0.56
	-080-A27-SN15-07C	▲	80	95.3	27	50	7.0	7	A	1.05
	-100-B32-SN15-08C	▲	100	115.3	32	50	7.0	8	B	1.67
	-100-B32-SN15-09C	▲	100	115.3	32	50	7.0	9	B	1.67
	-125-B40-SN15-10C	▲	125	140.3	40	63	7.0	10	B	3.10
	-160-C40-SN15-12	▲	160	175.3	40	63	7.0	12	C	4.20
	-160-C40-SN15-13	▲	160	175.3	40	63	7.0	13	C	4.14
-200-C60-SN15-15	▲	200	215.3	60	63	7.0	15	C	5.84	
-250-C60-SN15-18	▲	250	265.3	60	63	7.0	18	C	11.68	
-315-D60-SN15-22	▲	315	330.3	60	80	7.0	22	D	20.59	

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Insert screw	Wrench	
Ø63 - Ø160	SNEG1205ANR-GM/HGR/W	160M3.5×10	--	WT151S
Ø63 - Ø315	SNEG1506ANR-GM/HGR/W	160M5×13	WT20IT	--
Ø125 - Ø315	SNEG1907ANR-HGR	143M6×16	WT25IT	--

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

Indexable milling tools
Face milling tools

➤ Recommended cutting parameters

	Workpiece material	Hardness HB	Insert grade	Cutting parameters		
				V(m/min)	f(mm/z)	a _{pmax} (mm)
P	Low-carbon steel, Soft steel	≤180	YBM253 YBC302 YBG205 YB9320	270 (220-350)	0.2 (0.1-0.4)	5.5(SN12) 7.0(SN15) 9.0(SN19)
	High-carbon steel, Alloy steel	180-280	YBM253 YBC302 YBG205 YB9320	260 (200-320)	0.2 (0.1-0.4)	
	Alloy tool steel	280-350	YBM253 YBC302 YBG205 YB9320	240 (180-300)	0.2 (0.1-0.4)	
K	Cast iron	180-250	YBD152	270 (150-300)	0.3(0.1-0.5)	
			YBD252	200 (150-250)	0.4 (0.2-0.6)	
S	Hard-to-cut material	≤400	YBS203 YBS303	100 (60-120)	0.15 (0.08-0.3)	

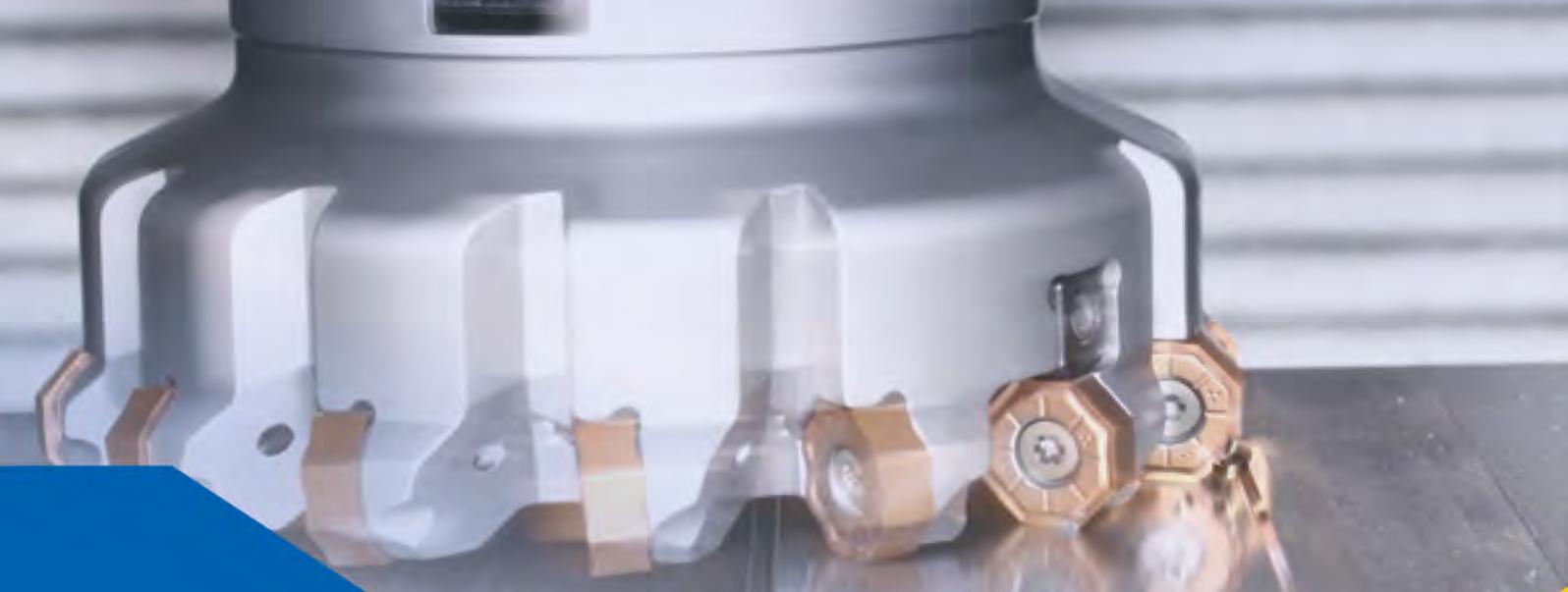
 Indexable milling tools
Face milling tools

Case for FMA11

Workpiece material: NAK80
 Operation: Face milling
 Tool: FMA11-125-B40-SN12-08
 Insert: SNEG1205ANR-HGR/YBG205
 Cutting parameters: Vc=200m/min, fz=0.2mm/z, Ap=2mm, Ae=50mm

● Tool Life Comparison

	Product of company A	-HGR / YBG205
Test Group 1		
Life	22 minutes	35 minutes wear 0.02mm
Test Group 1		
Life	27 minutes	35 minutes wear 0.01mm

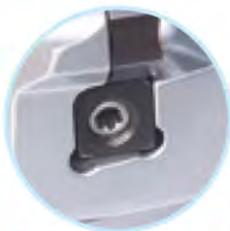


FMA 12 Series

KAPR:45°

Series

*High Performance Face Milling with 16 Edges
for Outstanding Economy*



Adjustment screw of wiper insert

The wiper insert of the finishing cutter can be finely adjusted in the axial direction and is used in processing situations with high surface quality requirements.



Unique 3-dimensional edge

The double negative structure of the cutter body, with the spiral insert cutting edge, realizes the positive axial forward angle, reduces the cutting force and is conducive to chip removal.

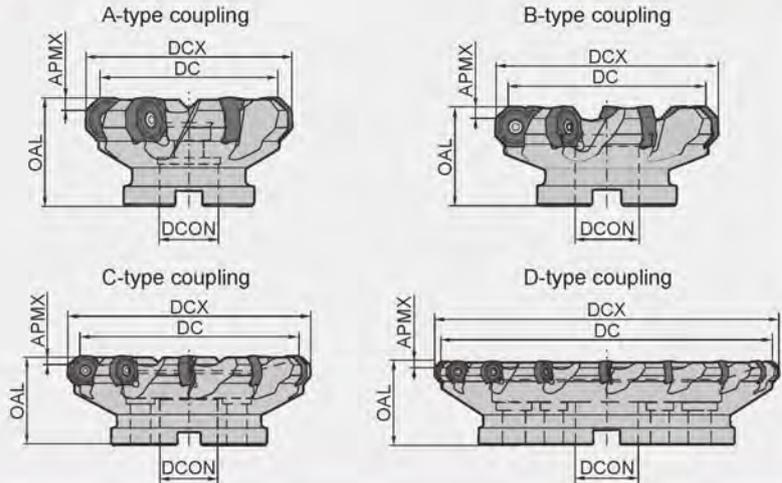


Face milling tools

KAPR:45°



FMA12 P M K S



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		DC	DCX	DCON	OAL	APMX			
FMA12									
Coarse pitch									
-050-A22-ON06-04C	▲	50	59	22	40	4	4	A	0.309
-063-A27-ON06-05C	▲	63	72	27	50	4	5	A	0.645
-080-A27-ON06-07C	▲	80	90	27	50	4	7	A	1.071
-100-A32-ON06-08C	▲	100	110	32	50	4	8	A	1.599
-125-B40-ON06-10	▲	125	135	40	63	4	10	B	3.114
-160-C40-ON06-12	▲	160	170	40	63	4	12	C	4.504
-200-C60-ON06-18	▲	200	210	60	63	4	18	C	6.35
-250-C60-ON06-20	▲	250	260	60	63	4	20	C	12.47
-315-D60-ON06-22	▲	315	325	60	80	4	22	D	21.25
-400-D60-ON06-28	△	400	410	60	80	4	28	D	39.78
-063-A22-ON09-04C	▲	63	76	22	50	5.5	4	A	0.7
-080-A27-ON09-05C	▲	80	93	27	50	5.5	5	A	1.1
-100-A32-ON09-06C	▲	100	113	32	50	5.5	6	A	1.6
-125-B40-ON09-08	▲	125	138	40	63	5.5	8	B	3.1
-160-C40-ON09-10	▲	160	173	40	63	5.5	10	C	3.982
-200-C60-ON09-12	▲	200	303	60	63	5.5	12	C	4.987
-250-C60-ON09-16	▲	250	260	60	63	5.5	16	C	11.89
-315-D60-ON09-20	▲	315	325	60	80	5.5	20	D	20.97
-400-D60-ON09-24	△	400	410	60	80	5.5	24	D	38.69

▲Stock available △Make-to-order

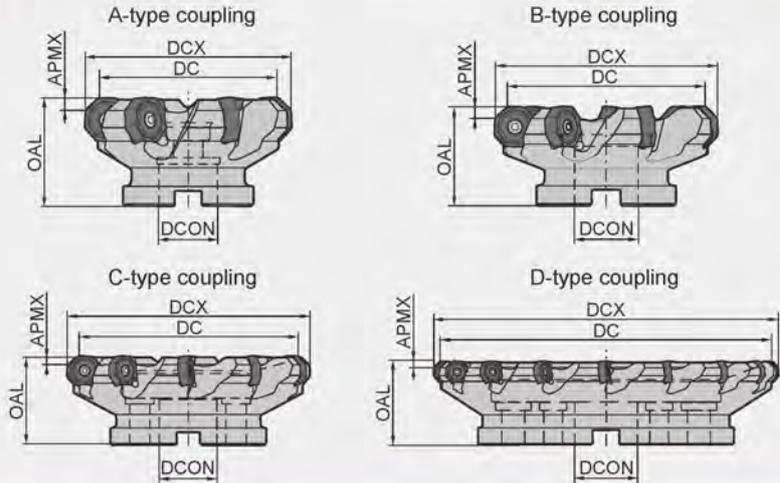
Indexable milling tools
Face milling tools

Face milling tools

KAPR:45°



FMA12 P M K S



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)		
	R	L	DC	DCX	DCON	OAL	APMX					
Coarse pitch	FMA12	-050-A22-ON06-05C	▲	△	50	59	22	40	4	5	A	0.352
		-063-A27-ON06-07C	▲	△	63	72	27	50	4	7	A	0.695
		-080-A27-ON06-09C	▲	△	80	90	27	50	4	9	A	1.098
		-100-A32-ON06-11C	▲	△	100	110	32	50	4	11	A	1.616
		-125-B40-ON06-14	▲	△	125	135	40	63	4	14	B	3.151
		-160-C40-ON06-18	▲	△	160	170	40	63	4	18	C	4.568
		-063-A22-ON09-06C	▲	△	63	76	22	50	5.5	6	A	0.84
		-080-A27-ON09-07C	▲	△	80	93	27	50	5.5	7	A	1.24
		-100-A32-ON09-10C	▲	△	100	113	32	50	5.5	10	A	1.809
		-125-B40-ON09-12C	▲	△	125	138	40	63	5.5	12	B	3.648
		-160-C40-ON09-15	▲	△	160	173	40	63	5.5	15	C	4.303
Finishing		-200-C60-ON09-18	▲	△	200	303	60	63	5.5	18	C	5.754
		-125-B40-ON06-14W2	▲		125	138	40	63	4	12+2	B	3.626
		-160-B40-ON06-18W3	▲		160	173	40	63	4	15+3	B	4.787
		-200-C60-ON06-24W4	▲		200	303	60	63	4	20+4	C	6.231

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw		Wrench	
Ø50-Ø63	ONMU06□□□□-GM/GH	IRM4×10	ADM6×1.0A	WT15IP	
Ø80-Ø125	ONHU06□□□□ANN-GM/GH/GL			WT15IS	
Ø160				WT15IT	
Ø63-Ø125	ONMU09□□□□-GM/GH	IRM5×13	WT20IS		
Ø160-Ø400	ONHU09□□□□ANN-GM/GH/GL		WT20IT		
Finishing cutterhead diameter DC	Insert	Insert screw	Adjustment block	Insert screw	Wrench
Ø125	ONMU06□□□□-GM/GH	DM6×20A	ADM6×1.0A	IRM4×10	WT15IS
Ø160-Ø200	ONHU06□□□□ANN-GM/GH/GL ONHU0604AN-W				WT15IT

Tools code key

B26-B27

Grade selection guide

B19-B23

Technical data

B271-B276

FMA 14

The General Milling Tool with High-efficiency Multiple Cutting Edges

- The balanced design with 45 clearance angle to achieve low cutting resistance for high-effective machining
- The upgraded new design of the chipbreaker which is suitable for different machining of steel and nodular cast iron
- The great anti-vibration tool ensures the good surface quality
- The pentagon design with 10 effective cutting edges which are suitable for both left and right cut, also provide high economical effect and stability



-GHI-GMI-GL



5 × 2 = 10 edge

The helical cutting edge design could reduce cutting resistance to achieve light cut

The optimized chipbreaker design ensures the strength which significantly reduces the cutting edge breakage risk.

The abundant chipbreaker series could deal with different machining condition

-GL: Emphasis on stable machining

Suitable for low cutting forces and the insufficient machine load situation

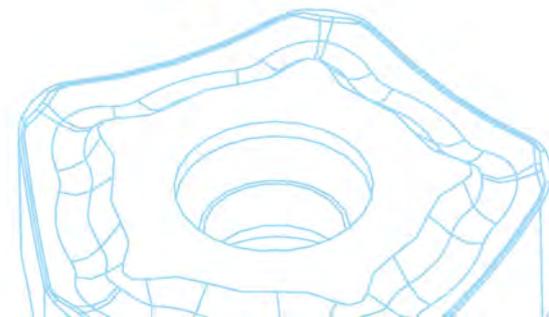
-GM: First choice for P material machining

The large radius cutting edge with optimized cutting edge design

-GH: Emphasis on anti-breakage machining

The high strength of the cutting edge significantly control the breakage risks

To combine with new grade YB9320 to achieve long tool life and stable machining

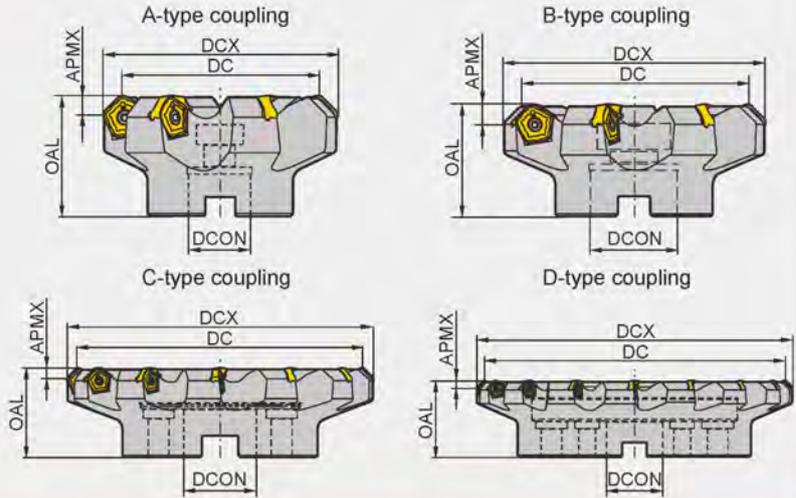


Face milling tools

KAPR:45°



FMA14 P M K



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
		DC	DCX	OAL	DCON	APMX				
FMA14 Coarse pitch	-050-A22-PN11-04	▲	50	66.7	50	22	5.5	4	A	0.571
	-063-A22-PN11-05	▲	63	79.7	50	22	5.5	5	A	0.77
	-080-A27-PN11-06	▲	80	96.7	50	27	5.5	6	A	1.09
	-100-B32-PN11-07	▲	100	116.7	50	32	5.5	7	B	1.48
	-125-B40-PN11-08	▲	125	141.7	63	40	5.5	8	B	3.39
	-160-B40-PN11-10	▲	160	176.7	63	40	5.5	10	B	5.93
	-200-C60-PN11-12	▲	200	216.7	63	60	5.5	12	C	6.28
	-250-C60-PN11-14	▲	250	266.7	63	60	5.5	14	C	11.84
	-315-D60-PN11-16	▲	315	331.7	80	60	5.5	16	D	19.8
Close pitch	-050-A22-PN11-05	▲	50	66.7	50	22	5.5	5	A	0.6
	-063-A22-PN11-06	▲	63	79.7	50	22	5.5	6	A	0.9
	-080-A27-PN11-08	▲	80	96.7	50	27	5.5	8	A	1.2
	-100-B32-PN11-10	▲	100	116.7	50	32	5.5	10	B	1.9
	-125-B40-PN11-12	▲	125	141.7	63	40	5.5	12	B	3.5
	-160-B40-PN11-14	▲	160	176.7	63	40	5.5	14	B	6.4
	-200-C60-PN11-16	▲	200	216.7	63	60	5.5	16	C	8.5
	-250-C60-PN11-18	▲	250	266.7	63	60	5.5	18	C	18.0
	-315-D60-PN11-26	▲	315	331.7	80	60	5.5	26	D	24.5

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Wrench	
Ø50-Ø63	PNEG1105□□-GL/GM/GH	I60M4×10	WT15IP	
Ø80-Ø125			WT15IS	
Ø160-Ø315			WT15IT	

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

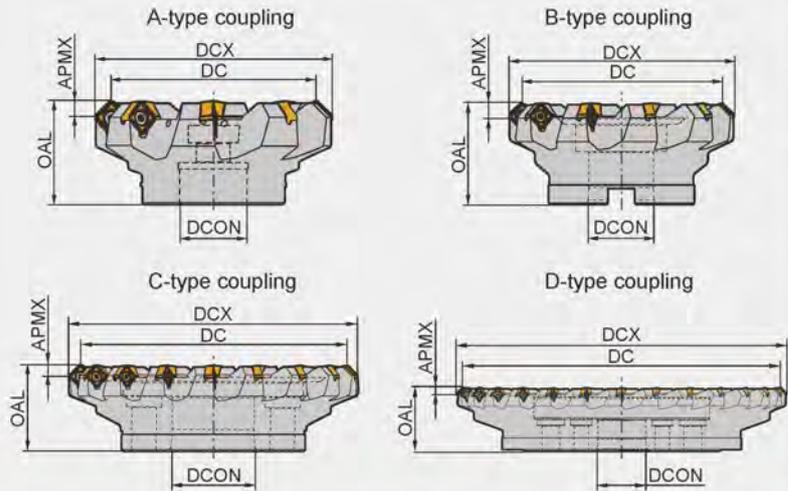
Indexable milling tools
Face milling tools

Face milling tools

KAPR:45°



FMA17 **K** **S**



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
	R	L	DC	DCX	OAL	DCON	APMX				
FMA17 Coarse pitch	-050-A22-SN12-04C	▲	△	50	65	22	40	6.5	4	A	0.384
	-063-A22-SN12-06C	▲	△	63	78	22	40	6.5	6	A	0.717
	-080-A27-SN12-07C	▲	△	80	95	27	50	6.5	7	A	1.085
	-100-A32-SN12-08	▲	△	100	115	32	50	6.5	8	A	1.558
	-125-B40-SN12-10	▲	△	125	140	40	63	6.5	10	B	3.012
	-160-C40-SN12-12	▲	△	160	175	40	63	6.5	12	C	4.358
	-200-C60-SN12-18	▲	△	200	215	60	63	6.5	18	C	6.337
	-250-C60-SN12-20	▲	△	250	265	60	63	6.5	20	C	12.360
	-315-D60-SN12-22	▲	△	315	330	60	80	6.5	22	D	21.224
-400-D60-SN12-28	▲	△	400	415	60	80	6.5	28	D	39.535	
Close pitch	-050-A22-SN12-06C	▲	△	50	65	22	40	6.5	6	A	0.381
	-063-A22-SN12-08C	▲	△	63	78	22	40	6.5	8	A	0.717
	-080-A27-SN12-10C	▲	△	80	95	27	50	6.5	10	A	1.105
	-100-A32-SN12-12C	▲	△	100	115	32	50	6.5	12	A	1.656
	-125-B40-SN12-16	▲	△	125	140	40	63	6.5	16	B	3.103
	-160-C40-SN12-20	▲	△	160	175	40	63	6.5	20	C	4.600
	-200-C60-SN12-24	▲	△	200	215	60	63	6.5	24	C	6.569

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Wrench
Ø50-Ø63	SNGX1205□□□□-GL/GM/GH/LH/W	IRM4×10	WT15IP
Ø80-Ø160			WT15IS
Ø200-Ø400			WT15IT



Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

Indexable milling tools
Face milling tools

Whirlwind

FMD02

Milling Tools Series

The optimized design of the acute angle clamping method has good self-locking performance and high clamping precision which provides enough resisting power to ensure the stability of the machining.

The open flute and large rake angle design could satisfy the machining requirement of different machine load.

The inserts with wiper design which helps to achieve the stable surface quality under different feed rate.

The good economical effect and abundant chipbreaker selections could satisfy multiple working conditions.

High strength screw clamping

67° approach angle

Wiper

Each insert has 10 cutting edges

New
New chipbreaker for cast iron
-KH -KM -KL

-KH

The optimized cutting edge design emphasis on anti-breakage machining

-KM

General machining chipbreaker. The first choice for cast iron machining

-KL

Emphasizing low cutting force machining to prevent vibration and control burrs to ensure the surface quality.

General face milling for steel and cast iron.
-GF -GM -GR
5×2=10edge

General face milling for cast iron
-PF -PM -PR
5×2=10edge

The helical cutting design with chamfered double-rake angle which can perfectly match different cutting depth requirement.

The high economical inserts with 10 cutting edges could be suitable for both left and right cuts with a high performance-to-cost ratio.

The optimized cutting edge design with high strength of cutting edges and outstanding wear resistance performance greatly increases the tool life.

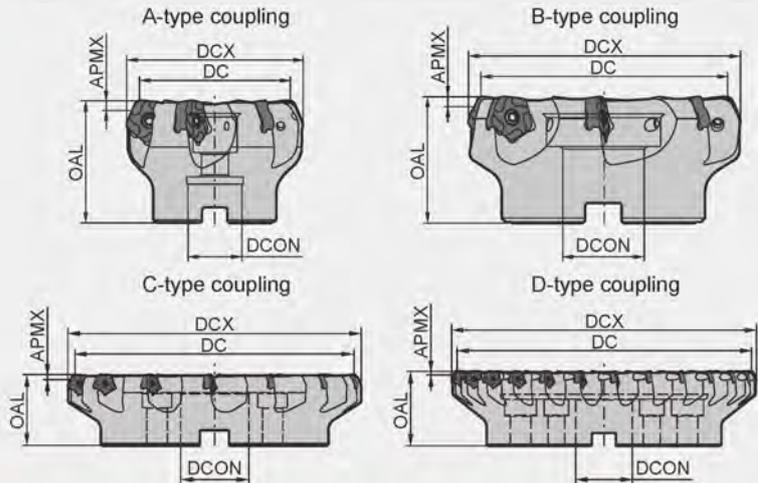
The low cutting forces design could effectively control the vibration. The combination of the FMD02 could achieve high-performance cast iron machining.

Face milling tools

KAPR:67°



FMD02 P K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)	
	R	L	DC	DCX	DCON	OAL	APMX				
Coarse pitch (unequal pitch)	FMD02 -050-A22-PN11-04	▲	△	50	60.1	22	50	5/6.5/7.5	4	A	0.6
	-063-A22-PN11-05	▲	△	63	73.1	22	50	5/6.5/7.5	5	A	0.8
	-080-A27-PN11-06	▲	△	80	90.1	27	50	5/6.5/7.5	6	A	1.1
	-100-B32-PN11-07	▲	△	100	110.1	32	50	5/6.5/7.5	7	B	1.8
	-125-B40-PN11-08	▲	△	125	135.1	40	63	5/6.5/7.5	8	B	2.9
	-160-B40-PN11-10	▲	△	160	170.1	40	63	5/6.5/7.5	10	B	5.6
	-200-C60-PN11-12	▲	△	200	210.1	60	63	5/6.5/7.5	12	C	7.9
	-250-C60-PN11-14	▲	△	250	260.1	60	63	5/6.5/7.5	14	C	13.4
Close pitch	-050-A22-PN11-05	▲	△	50	60.1	22	50	5/6.5/7.5	5	A	0.6
	-063-A22-PN11-06	▲	△	63	73.1	22	50	5/6.5/7.5	6	A	0.9
	-080-A27-PN11-08	▲	△	80	90.1	27	50	5/6.5/7.5	8	A	1.2
	-100-B32-PN11-10	▲	△	100	110.1	32	50	5/6.5/7.5	10	B	1.9
	-125-B40-PN11-12	▲	△	125	135.1	40	63	5/6.5/7.5	12	B	3.2
	-160-B40-PN11-14	▲	△	160	170.1	40	63	5/6.5/7.5	14	B	6.4
	-200-C60-PN11-16	▲	△	200	210.1	60	63	5/6.5/7.5	16	C	8.5
	-250-C60-PN11-18	▲	△	250	260.1	60	63	5/6.5/7.5	18	C	18.0
	-315-D60-PN11-26	▲	△	315	325.1	60	80	5/6.5/7.5	26	D	24.5

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Insert screw	Wrench	
Ø50 - Ø315	PNEG110512□-CF/CM/CR	I60M4×10	WT15IS	

Tools code key

B26-B27

Grade selection guide

B19-B23

Technical data

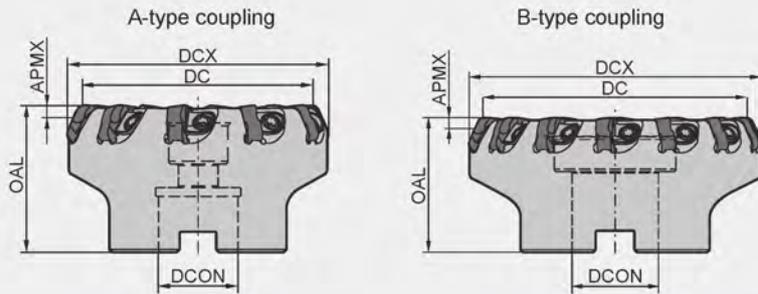
B271-B276

Face milling tools

KAPR:67°



FMD02 P K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FMD02 Extra close pitch	▲	△	80	90.1	27	50	5/6.5/7.5	10	A	1.3
	▲	△	100	110.1	32	50	5/6.5/7.5	14	B	1.6
	▲	△	125	135.1	40	63	5/6.5/7.5	18	B	3.2
	▲	△	160	170.1	40	63	5/6.5/7.5	22	B	5.8
	▲	△	200	210.1	60	63	5/6.5/7.5	28	C	9.7
	▲	△	250	260.1	60	63	5/6.5/7.5	36	C	19.8

▲Stock available △Make-to-order



Spare parts

Diameter DC	Inserts	Wedge	Screw	Wrench	
Ø80 -Ø160	PNEG110512□-PF/PM/PR	W18N	DM6×20A	WT15IT	

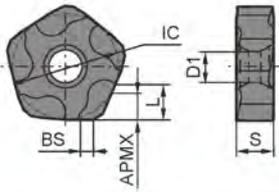
Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

Indexable milling tools
Face milling tools

Selection of inserts



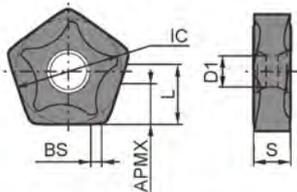
😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊	😊😊	😊😊	😊😊	😊😊
M Stainless steel	😊😊	😊😊	😊😊	😊😊	😊😊
K Cast iron	😊😊	😊😊	😊😊	😊😊	😊😊
N Non-ferrous metal	😊😊	😊😊	😊😊	😊😊	😊😊
S Heat resistant alloy, Ti alloy	😊😊	😊😊	😊😊	😊😊	😊😊

Insert shape	Type	Basic dimensions(mm)						CVD Coating					PVD Coating					Cermet		Cemented carbide				
		L	IC	S	D1	BS	APMX	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201	
	PNEG110512R-CF	5.4	15.875	5.56	4.64	1.6	5		●															
	PNEG110512L-CF	5.4	15.875	5.56	4.64	1.6	5		●															
	PNEG110512R-CM	5.4	15.875	5.56	4.64	1.6	5		●															
	PNEG110512L-CM	5.4	15.875	5.56	4.64	1.6	5		●															
	PNEG110512R-CR	5.4	15.875	5.56	4.64	1.6	5		●															
	PNEG110512L-CR	5.4	15.875	5.56	4.64	1.6	5		●															

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metal	S Heat resistant alloy, Ti alloy
P Steel	😊😊	😊😊	😊😊	😊😊	😊😊
M Stainless steel	😊😊	😊😊	😊😊	😊😊	😊😊
K Cast iron	😊😊	😊😊	😊😊	😊😊	😊😊
N Non-ferrous metal	😊😊	😊😊	😊😊	😊😊	😊😊
S Heat resistant alloy, Ti alloy	😊😊	😊😊	😊😊	😊😊	😊😊

Insert shape	Type	Basic dimensions(mm)						CVD Coating					PVD Coating					Cermet		Cemented carbide				
		L	IC	S	D1	BS	APMX	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201	
	PNEG110512R-PF	7.5	15.875	5.56	4.64	1.4	7.5	★	●															
	PNEG110512L-PF	7.5	15.875	5.56	4.64	1.4	7.5	★	●															
	PNEG110512R-PM	7.5	15.875	5.56	4.64	1.4	7.5	★	●															
	PNEG110512L-PM	7.5	15.875	5.56	4.64	1.4	7.5	★	●															
	PNEG110512R-PR	7.5	15.875	5.56	4.64	1.4	7.5	★	●															
	PNEG110512L-PR	7.5	15.875	5.56	4.64	1.4	7.5	★	●															

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Case for FMD02

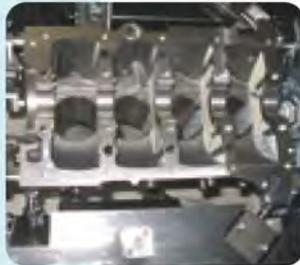
Application case

ZCC-CT

Cutting parameters:
 D=100mm, $a_p=3\sim 5\text{mm}$,
 $V_c=243\text{m/min}$, $f_z=0.15\text{mm/z}$,
 T=145~155 piece

similar product of company A

Cutting parameters:
 D=100mm, $a_p=3\sim 5\text{mm}$,
 $V_c=243\text{m/min}$, $f_z=0.12\text{mm/z}$,
 T=120~133 piece



Tool type: FMD02-100-B32-PN11-10

Insert type/grade: PNEG110512R-CR/YBD152

(The inserts without clearance angle to have a total of 10 cutting edges)



Comparison of insert abrasion



ZCC-CT insert after 80 minutes machining

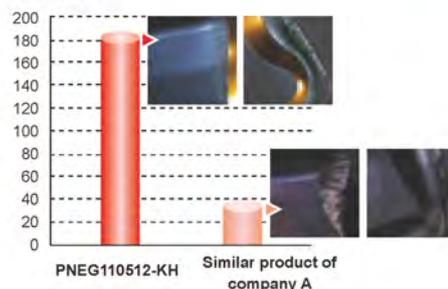


Insert of company A after 48 minutes machining

Application case

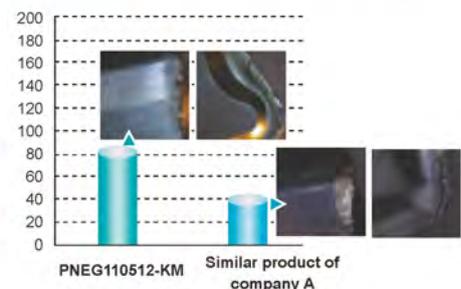
Workpiece material	Grey cast iron 250	Insert	PNEG110512-KM/YBD152 PNEG110512-KH/YBD252
Tool type	FMD02-125-B40-PN11-08	Cutting method	single pitch dry cut

Time (min)



Abrasion comparison

Cutting parameters: $V_c=240\text{m/min}$,
 $f_z=0.3\text{mm/z}$, $A_p=3\text{mm}$, $A_e=70\text{mm}$



Abrasion comparison

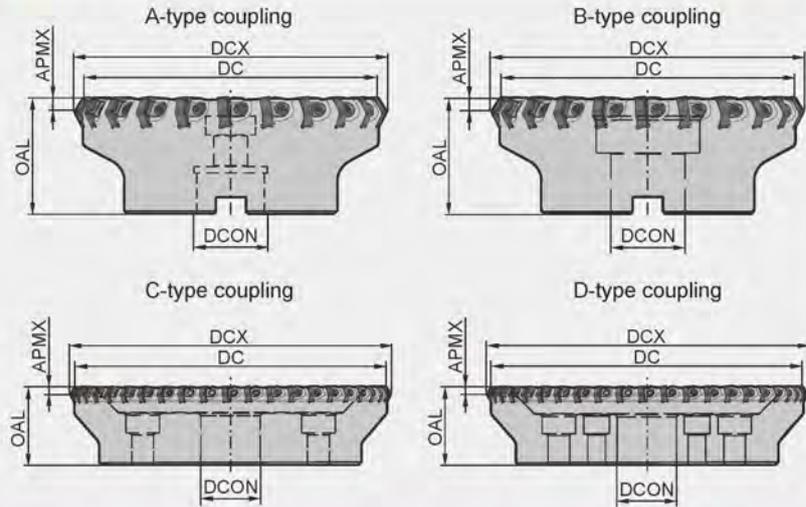
Cutting parameters: $V_c=300\text{m/min}$,
 $f_z=0.2\text{mm/z}$, $A_p=2\text{mm}$, $A_e=70\text{mm}$

Face milling tools

KAPR:55°



FMD02 **K**



Specification of tools

Type	Stock		Basic dimensions(mm)				Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCON	OAL	APMX			
FMD02 -080-A27-HN09-10	▲	△	80	27	50	6	10	A	1.1
-100-B32-HN09-14	▲	△	100	32	63	6	14	B	2.6
-125-B40-HN09-18	▲	△	125	40	70	6	18	B	3.7
-160-B40-HN09-22	▲	△	160	40	63	6	22	B	5.6
-200-C60-HN09-28	▲	△	200	60	63	6	28	C	6.3
-250-C60-HN09-36	▲	△	250	60	63	6	36	C	10.3
-315-D60-HN09-44	▲	△	315	60	63	6	44	D	21.7

▲Stock available △Make-to-order

Indexable milling tools
Face milling tools

Spare parts

Diameter DC	Wedge	Wedge screw	Wrench
Ø80-Ø315	 W18N	 DM6×20A	 WT15IT



Tools code key
B26-B27

Grade selection guide
B19-B23

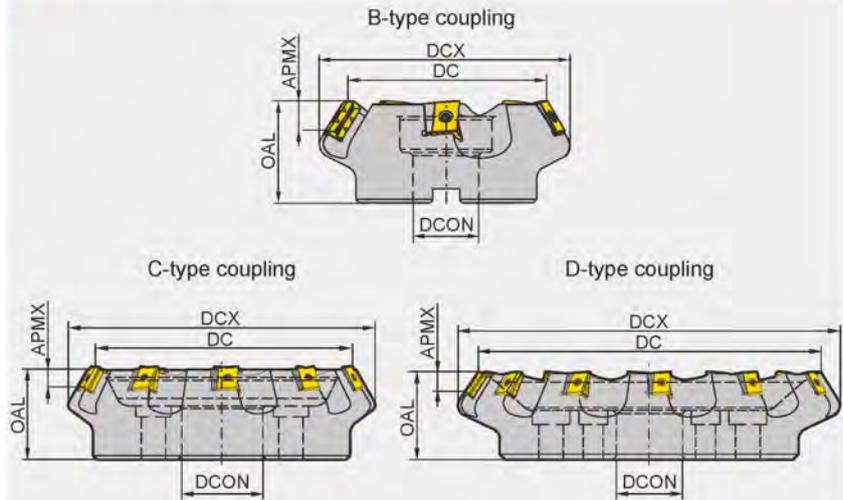
Technical data
B271-B276

Face milling tools

KAPR:60°



FMD03 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FMD03 -125-B40-LN20-06	▲	△	125	153	40	63	12	6	B	4.5
-160-C40-LN20-08	▲	△	160	187	40	63	12	8	C	6.9
-200-C60-LN20-10	▲	△	200	227	60	70	12	10	C	10.5
-250-C60-LN20-12	▲	△	250	276	60	70	12	12	C	13.4
-315-D60-LN20-15	▲	△	315	339	60	80	12	15	D	26.2
-125-B40-LN25-05	▲	△	125	154	40	63	17	5	B	4.5
-160-C40-LN25-06	▲	△	160	189	40	63	17	6	C	6.9
-200-C60-LN25-08	▲	△	200	229	60	70	17	8	C	10.5
-250-C60-LN25-10	▲	△	250	278	60	70	17	10	C	16.7
-315-D60-LN25-12	▲	△	315	346	60	80	17	12	D	27.3
-400-D60-LN25-16	▲	△	400	427	60	80	17	16	D	47.1

▲Stock available △Make-to-order

Spare parts

Inserts	Shim	Shim screw	Insert screw	Wrench	
LNKT2007DN-ZR	LLN20R-ZR	I60M3×7	I60M4×15	WT15IS	WT10IS
LNKT2510-ZR	LLN25R-ZR	I60M3.5×10.4	I60M5×17	WT20IT	WT15IS

Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

Indexable milling tools
Face milling tools

Face milling tools

KAPR:75°

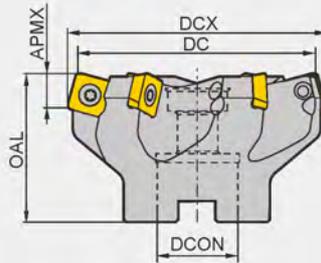


Face milling

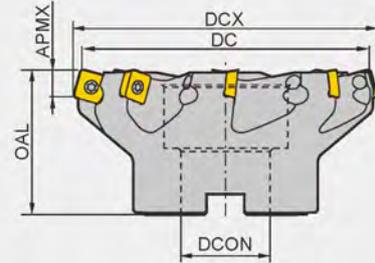
FME02 P M K



A-type coupling



B-type coupling



Specification of tools

Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
		DC	DCX	DCON	OAL	APMX			
FME02 -050-A22-SP12-04	△	50	54	22	40	6	A	0.3	
-063-A22-SP12-05	△	63	66	22	50	6	A	0.6	
-080-A27-SP12-06	△	80	83	27	50	6	A	0.9	
-100-B32-SP12-07	△	100	103	32	50	6	B	1.4	
-125-B40-SP12-08	△	125	128	40	63	6	B	2.5	

▲Stock available △Make-to-order

Indexable milling tools

Face milling tools



Spare parts

Diameter DC	Insert screw	Wrench
Ø50-Ø125	I60M5×13.2	WT20IS



Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276

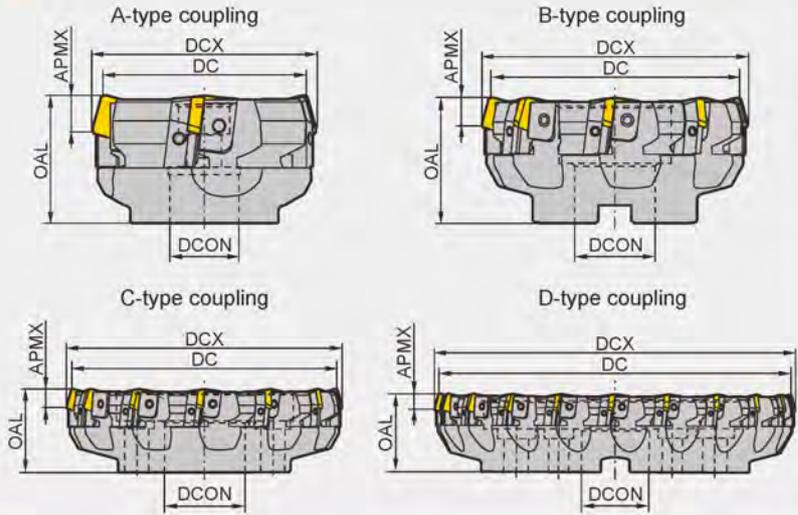
Face milling tools

KAPR:75°



Face milling

FME03 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FME03 -080-A27-SP12-04	▲	△	80	84	27	50	6	4	A	1.1
-100-B32-SP12-06	▲	△	100	104	32	50	6	6	B	1.9
-125-B40-SP12-08	▲	△	125	129	40	63	6	8	B	3.5
-160-B40-SP12-10	▲	△	160	164	40	63	6	10	B	5.7
-200-C60-SP12-12	▲	△	200	203	60	63	6	12	C	8.2
-250-C60-SP12-16	▲	△	250	253	60	63	6	16	C	13.8
-315-D60-SP12-20	▲	△	315	318	60	70	6	20	D	23.5
-080-A27-SP15-04	▲	△	80	84	27	50	8	4	A	1.0
-100-B27-SP15-06	▲	△	100	104	27	50	8	6	B	1.8
-125-B40-SP15-08	▲	▲	125	129	40	63	8	8	B	3.3
-160-B40-SP15-10	▲	▲	160	164	40	63	8	10	B	5.4
-200-C60-SP15-12	▲	▲	200	204	60	63	8	12	C	7.9
-250-C60-SP15-16	▲	▲	250	253	60	63	8	16	C	13.6
-315-D60-SP15-20	▲	▲	315	318	60	70	8	20	D	23.1

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Locator	Wedge	Wedge Screw	Locator screw	Wrench	
Ø80-Ø100	SP12	LSP12R/L	W04R/L	WM8×17	LOM5×15.1	WT20T WT25T	
Ø125-Ø315				WM8×22			
Ø80-Ø315	SP15	LSP15R/L	W04R/L	WM8×22			

Tools code key
B26-B27

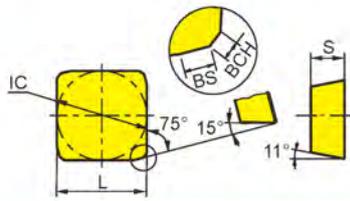
Grade selection guide
B19-B23

Technical data
B271-B276

Indexable milling tools

Face milling tools

Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Working Condition															
	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

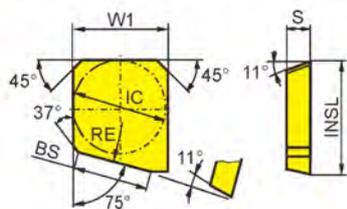
Insert shape	Type	Basic dimensions(mm)					CVD Coating					PVD Coating			Cermet	Cemented carbide						
		L	IC	S	BCH	BS	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201
	SPKR1504EDR-GM	15.875	15.875	4.76	1	1.4									★		★					●
	SPKR1504EDL-GM	15.875	15.875	4.76	1	1.4									★		★					
	SPMR1504ESR-M	15.875	15.875	4.76	-	1.2	●	★	●													
	SPMR1504ESL-M	15.875	15.875	4.76	-	1.2	●	★	●													

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

Indexable milling tools

Face milling tools

Selection of inserts



😊 Good working condition 😐 Normal working condition 😞 Bad working condition

Workpiece material	Working Condition															
	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201
P Steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
M Stainless steel	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
K Cast iron	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
N Non-ferrous metal	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊
S Heat resistant alloy, Ti alloy	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊	😊

Insert shape	Type	Basic dimensions(mm)						CVD Coating					PVD Coating			Cermet	Cemented carbide							
		INSL	IC	W1	S	BS	RE	YBC302	YBM253	YBD152	YBD203	YBD252	YBG105	YBG202	YBG205	YB9320	YBG302	YBS203	YBS303	YNG151	YNG151C	YD101	YD201	
	SPEX1203EDL-1	15	12.7	12.7	3.18	10	500																●	
	SPEX1203EDR-1	15	12.7	12.7	3.18	10	500																	●
	SPEX1504EDL-1	18.2	15.875	15.875	4.76	10	500																	●
	SPEX1504EDR-1	18.2	15.875	15.875	4.76	10	500																	●

★Recommended grade (always stock available) ●Available grade (always stock available) ○Make-to-order

▶▶ Cutting edge treatment selection for FME03 milling inserts

Treatment of cutting edge	Recommended selection
SP□□EDER/L	Honing edge is suitable for semi-finish and finish machining of steel and stainless steel.
SP□□EDFR/L	Sharp cutting edge is suitable for finish machining of cast iron materials.
SP□□EDSKR/L SP□□EDS□□R/L	After chamfering and honing, the edge has strong anti-breakage capability, suitable for rough machining of steel parts under poor working conditions.
SP□□EDTKR/L SP□□EDT□□R/L	The Chamfered edge is suitable for semi-finishing and finishing machining of steel, stainless steel and cast iron materials.
SP□□EDR/L-GM	3D chipbreaker can reduce cutting force, reinforce the capability of chip control, and improve insert life. It is widely applied in semi-finish machining of steel, stainless steel and cast iron materials.

▶▶ Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters		
			V(m/min)	f(mm/z)	
P	Low-carbon steel, Soft steel	YBG202	270(200-360)	0.2 (0.1-0.4)	
		YBG302	230 (170-350)	0.24 (0.1-0.3)	
		YBM253 YBC302	270(220-350)	0.2 (0.1-0.4)	
		YBM253	220 (180-300)	0.25 (0.15-0.3)	
	High-carbon steel, Alloy steel	180-280	YBG202	240 (180-350)	0.2 (0.1-0.3)
			YBG302	220 (150-330)	0.24 (0.1-0.3)
			YBM253 YBC302	240 (200-320)	0.2 (0.1-0.4)
			YBM253	200 (160-280)	0.25 (0.15-0.3)
	Alloy tool steel	280-350	YBG202	220 (170-340)	0.2 (0.1-0.3)
			YBG302	190 (130-300)	0.24 (0.1-0.3)
			YBM253 YBC302	220 (180-300)	0.2 (0.1-0.4)
			YBM253	180 (150-250)	0.25 (0.15-0.3)
M	Stainless steel	YBG202	160 (110-270)	0.2 (0.1-0.3)	
		YBG302	140 (100-250)	0.24 (0.1-0.3)	
		YBM253	140 (100-240)	0.25 (0.15-0.3)	
K	Cast iron	YBG105	210 (120-300)	0.12 (0.08-0.3)	
		YBG302	160 (120-200)	0.2 (0.1-0.3)	
		YD201	100 (80-160)	0.24 (0.15-0.4)	



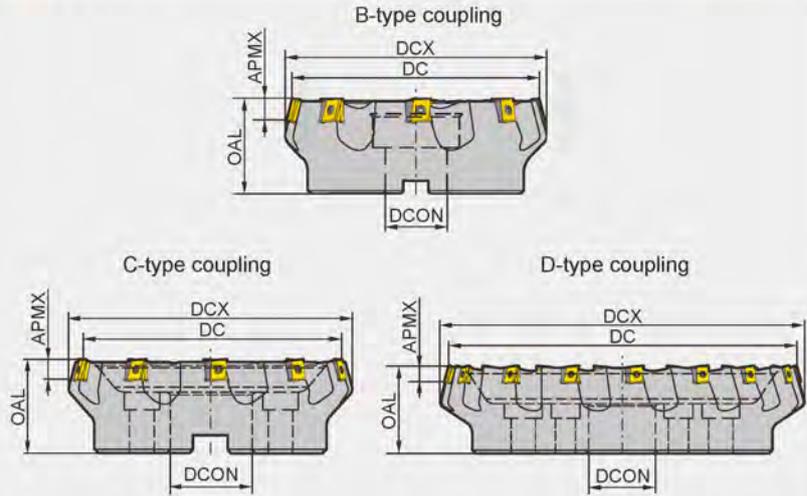
Indexable milling tools
Face milling tools

Face milling tools

KAPR:75°



FME04 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	DCON	OAL	APMX			
FME04 -125-B40-LN15-06	▲	△	125	137	40	63	12	6	B	3.8
-160-B40-LN15-08	▲	△	160	170	40	63	12	8	B	6.6
-200-C60-LN15-10	▲	△	200	208	60	70	12	10	C	9.6
-250-C60-LN15-12	▲	△	250	257	60	70	12	12	C	13.4
-315-D60-LN15-16	▲	△	315	328	60	80	12	16	D	25.2

▲Stock available △Make-to-order

Indexable milling tools
Face milling tools

Spare parts

Diameter DC	Shim	Shim screw	Insert screw	Wrench	
Ø125-Ø315	LLN15-ZR	I60M3×7	I60M4×12	WT15IS, WT09IS	

Tools code key
B26-B27

Grade selection guide
B19-B23

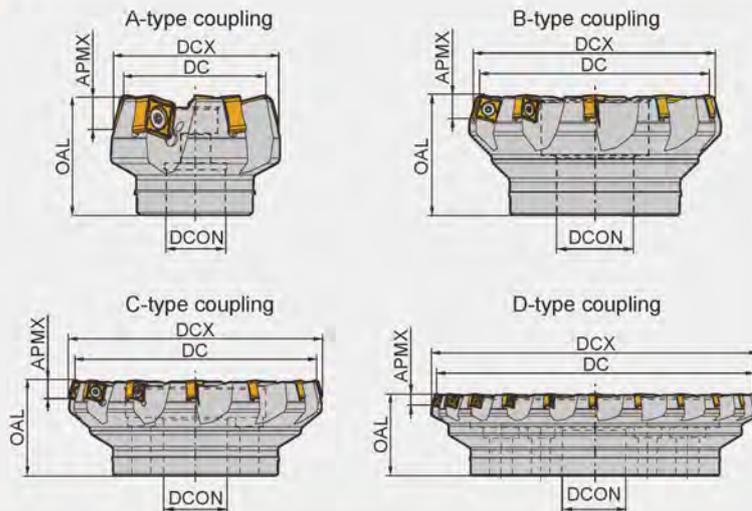
Technical data
B271-B276

Face milling tools

KAPR:75°



FME17 P M K S



Specification of tools

Type	Stock		Basic dimensions(mm)					Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	OAL	DCON	APMX			
Coarse pitch	▲	△	50	60	22	40	8.0	4	A	0.361
	▲	△	63	73	22	40	8.0	5	A	0.520
	▲	△	80	90	27	50	8.0	6	A	1.101
	▲	△	100	110	32	50	8.0	8	A	1.663
	▲	△	125	135	40	63	8.0	10	B	3.099
	▲	△	160	170	40	63	8.0	12	C	4.535
	▲	△	200	210	60	63	8.0	14	C	6.450
	▲	△	250	260	60	63	8.0	18	C	12.980
	▲	△	315	325	60	80	8.0	22	D	21.932
Close pitch	△	△	400	410	60	80	8.0	28	D	41.555
	▲	△	50	60	22	40	8.0	5	A	0.337
	▲	△	63	73	22	40	8.0	7	A	0.530
	▲	△	80	90	27	50	8.0	9	A	1.112
	▲	△	100	110	32	50	8.0	11	A	1.577
	▲	△	125	135	40	63	8.0	14	B	3.145
	▲	△	160	170	40	63	8.0	18	C	4.647
	▲	△	200	210	60	63	8.0	22	C	6.552

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Wrench
Ø50-Ø63	SN□X1205□□□-GL/GM/GH/W	IRM4×10	WT15IP
Ø80-Ø125			WT15IS
Ø160-Ø400			WT15IT



Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

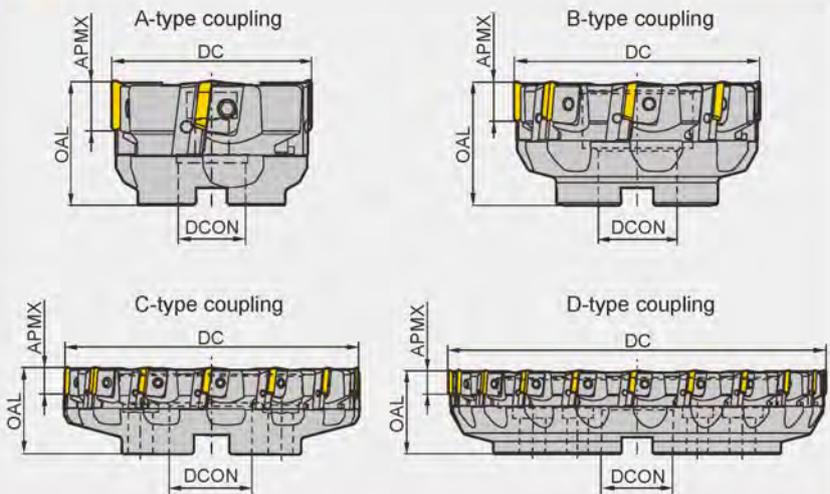
Indexable milling tools
Face milling tools

Face milling tools

KAPR:90°



FMP01 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)				Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCX	OAL	APMX			
FMP01 -080-A27-TP22-04	▲	△	80	27	50	18	4	A	1.2
-100-B32-TP22-06	▲	△	100	32	50	18	6	B	1.7
-125-B40-TP22-08	▲	△	125	40	63	18	8	B	3.2
-160-B40-TP22-10	▲	△	160	40	63	18	10	B	5.1
-200-C60-TP22-12	▲	△	200	60	63	18	12	C	7.4
-250-C60-TP22-16	▲	△	250	60	63	18	16	C	12.3
-315-D60-TP22-20	▲	△	315	60	70	18	20	D	21.9

▲Stock available △Make-to-order

Indexable milling tools

Face milling tools

Spare parts

Diameter DC	Locator	Wedge	Wedge Screw	Locator screw	Wrench
Ø80-Ø100	LTP4R1/L1	W04R/L	WM8×17	LOM5×15.1	WT20T WT25T
Ø125-Ø315	LTP4R/L		WM8×22		

Tools code key B26-B27

Grade selection guide B19-B23

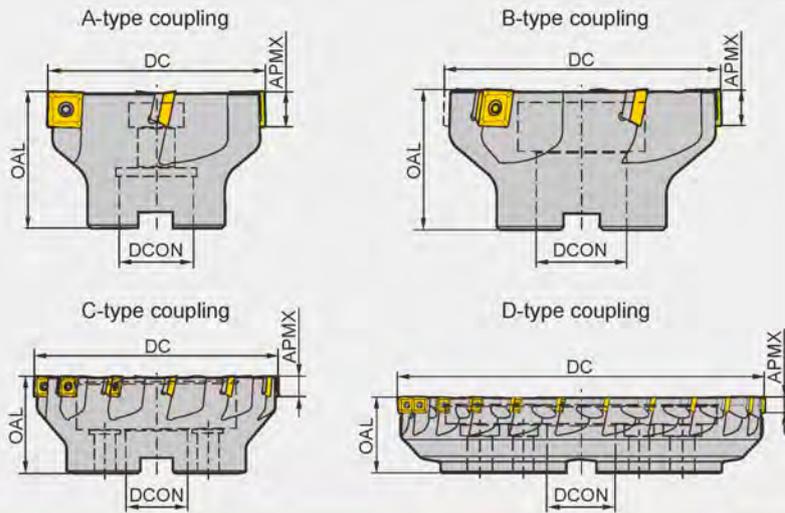
Technical data B271-B276

Face milling tools

KAPR:90°



FMP02 P M K



Specification of tools

Type	Stock	Basic dimensions(mm)				Number of teeth Z	Type of coupling	Weight (kg)
		DC	DCON	OAL	APMX			
FMP02 -040-A16-SE09-04	▲	40	16	40	6.7	4	A	0.2
Coarse pitch -050-A22-SE09-05	▲	50	22	40	6.7	5	A	0.3
-063-A22-SE09-06	▲	63	22	40	6.7	6	A	0.5
-080-A27-SE09-08	▲	80	27	50	6.7	8	A	0.9
-100-B32-SE09-08	▲	100	32	50	6.7	8	B	1.7
-125-B40-SE09-12	▲	125	40	63	6.7	12	B	2.6
-050-A22-SE12-03	▲	50	22	40	10.8	3	A	0.3
-063-A22-SE12-04	▲	63	22	40	10.8	4	A	0.4
-080-A27-SE12-04	▲	80	27	50	10.8	4	A	0.9
-100-B32-SE12-05	▲	100	32	50	10.8	5	B	1.2
-125-B40-SE12-06	▲	125	40	63	10.8	6	B	3.1
-160-C40-SE12-08	▲	160	40	63	10.8	8	C	4.1
-200-C60-SE12-10	▲	200	60	63	10.8	10	C	5.718
-250-C60-SE12-12	▲	250	60	63	10.8	12	C	11.1

▲Stock available △Make-to-order

Indexable milling tools
Face milling tools

Specification of tools

Type	Stock	Basic dimensions(mm)				Number of teeth Z	Type of coupling	Weight (kg)
		DC	DCON	OAL	APMX			
FMP02 Close pitch	▲	40	16	40	6.7	6	A	0.22
	▲	50	22	40	6.7	7	A	0.313
	▲	63	22	40	6.7	8	A	0.479
	▲	80	27	50	6.7	10	A	1.079
	▲	100	32	50	6.7	10	B	1.7
	▲	50	22	40	10.8	4	A	0.3
	▲	63	22	40	10.8	5	A	0.4
	▲	80	27	50	10.8	6	A	0.8
	▲	100	32	50	10.8	7	B	1.2
	▲	125	40	63	10.8	8	B	3.0
	▲	160	40	63	10.8	12	C	3.9
Extra close pitch	▲	50	22	40	10.8	5	A	0.2
	▲	63	22	40	10.8	6	A	0.4
	▲	80	27	50	10.8	8	A	0.8
	▲	100	32	50	10.8	10	B	1.2
	▲	125	40	63	10.8	12	B	2.9
	▲	160	40	63	10.8	15	C	4.061
	▲	200	60	63	10.8	16	C	6.1
	▲	250	60	63	10.8	18	C	10.9
▲	315	60	63	10.8	24	D	21.6	

▲ Stock available △ Make-to-order

Indexable milling tools
Face milling tools

Spare parts

Diameter DC	Inserts	Shim	Insert screw	Shim screw	Wrench	Wrench	
Ø50-Ø125	SE09	--	I60M3×7	--	WT09IS	--	
Ø50	SE12	--	I60M3.5×10	--	WT15IS	--	
Ø63-Ø315		S12BSX	I60M3.5×12	SM5×7×A		WH35L	

Tools code key
B26-B27

Grade selection guide
B19-B23

Technical data
B271-B276



Features of

FMP02

Milling Tool Series



Inserts designed with new geometries and coated grades for optimized high efficiency machining in different working conditions.



Unique geometric design resulting in true 90° square shoulder cutting.



Upgraded insert structure, greatly improves tool life.



Large positive rake angle resulting in easier cutting with less tool pressure.



Screw down clamping resulting in better chip evacuation.

▶▶ Recommended cutting parameters

Workpiece material	Hardness HB	Insert grade	Cutting parameters				
			V(m/min)	f(mm/z)			
				-APF	-APM	-APR	
P	Cutting parameters	≤180	YBG202	270(200-360)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YB9320	270(200-360)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
	High-carbon steel, Alloy steel	180-280	YBM253	240 (200-320)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YBG202	240 (180-350)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
	Alloy tool steel	280-350	YB9320	240 (180-350)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YBM253	220 (180-300)	0.1(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
M	Stainless steel	≤270	YBG202	220 (170-340)	0.1(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YB9320	220 (170-340)	0.1(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YBM253	150 (120-240)	0.1(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
K	Cast iron	180-250	YBG202	160 (110-270)	0.1(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YB9320	160 (110-270)	0.1(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YBG202	160 (120-200)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
			YBD152	270 (150-300)	0.15(0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)

Case for FMP02

Workpiece material: 45#
 Hardness: 175-190 (HB)
 Cooling: Air cooling
 Tool: FMP02-100-B32-SE12-10
 Insert: SEET120308PER-APM (YB9320)
 Data:

Data 1: Vc=200m/min, fz=0.15mm/z,
 Ap=7mm, Ae=5mm
 Data 2: Vc=200m/min, fz=0.25mm/z,
 Ap=7mm, Ae=5mm



● SEET120308PER-APM inserts tests

Chipbreaker	Data 1: Vc=200m/min, fz=0.15mm/z Ap=7mm, Ae=5mm		Data 2: Vc=200m/min, fz=0.25mm/z Ap=7mm, Ae=5mm	
	Runout value	Surface machined	Runout value	Surface machined
-APM	0.006		0.006	
Products of company A	0.012		0.012	
Products of company B	0.013		0.015	



-APM



Product of company B

Results:

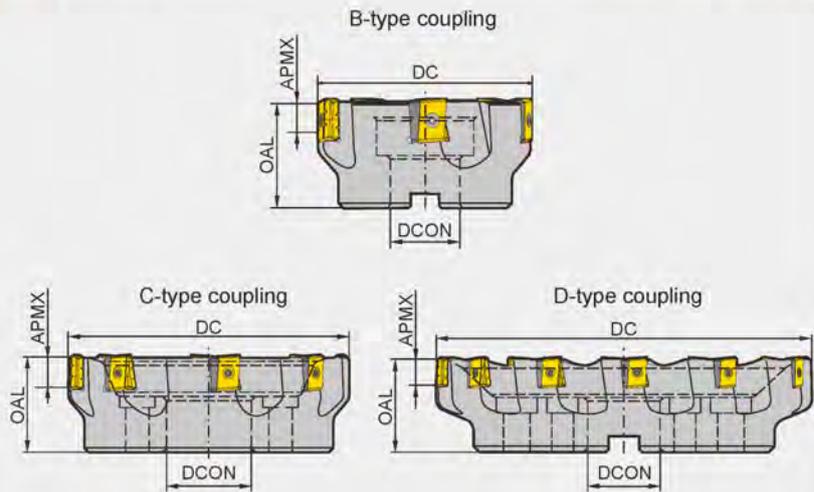
Comparing with competitors, SEET120308PER-APM inserts can get better surface quality and longer tool life.

Face milling tools

KAPR:90°



FMP03 P M K



Specification of tools

Type	Stock		Basic dimensions(mm)				Number of teeth Z	Type of coupling	Weight (kg)
	R	L	DC	DCON	OAL	APMX			
FMP03 -125-B40-LN15-06	▲	△	125	40	63	13	6	B	3.2
-160-C40-LN15-08	▲	△	160	40	63	13	8	C	5.1
-200-C60-LN15-10	▲	△	200	60	70	13	10	C	7.5
-250-C60-LN15-12	▲	△	250	60	70	13	12	C	12.2
-315-D60-LN15-16	▲	△	315	60	80	13	16	D	23.7
-125-B40-LN20-06	▲	△	125	40	63	17	6	B	3.3
-160-C40-LN20-08	▲	△	160	40	63	17	8	C	5.3
-200-C60-LN20-10	▲	△	200	60	70	17	10	C	8.8
-250-C60-LN20-12	▲	△	250	60	70	17	12	C	14.0
-315-D60-LN20-15	▲	△	315	60	80	17	15	D	23.9
-125-B40-LN25-05	▲	△	125	40	63	22	5	B	3.3
-160-C40-LN25-06	▲	△	160	40	63	22	6	C	5.1
-200-C60-LN25-08	▲	△	200	60	70	22	8	C	8.9
-250-C60-LN25-10	▲	△	250	60	70	22	10	C	12.0
-315-D60-LN25-12	▲	△	315	60	80	22	12	D	21.9

▲Stock available △Make-to-order

Spare parts

Insert	Shim	Shim screw	Insert screw	Wrench	
LNKT1506EN-ZR	LLN15-ZR	I60M3×7	I60M4×12	WT15IS	WT09IS
LNKT2007DN-ZR	LLN20R-ZR	I60M3×7	I60M4×15	WT15IS	WT09IS
LNKT2510-ZR	LLN25R-ZR	I60M3.5×10.4	I60M5×17	WT20IT	WT15IS

Tools code key
B26-B27

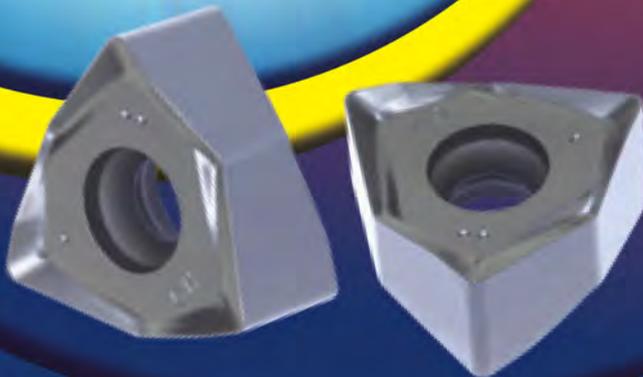
Grade selection guide
B19-B23

Technical data
B271-B276

FMP12

Milling Tool Series

KAPR:90°



- Double negative angle of the cutter, combined with unique insert structure, to achieve double positive tool angle, which is beneficial to reducing cutting force;
- 6-flute cutting double-sided slot milling inserts, enabling high-quality 90° square shoulder milling, face milling and slot milling;
- Insert with wiper enables large feed and better surface finish.

Application case

Tool specification: FMP12-080-A27-WN08-05C

Insert specification/grade: WNHU080608PNR-GM/YBD152

Part Name: Turbine Housing

Workpiece material: QT450

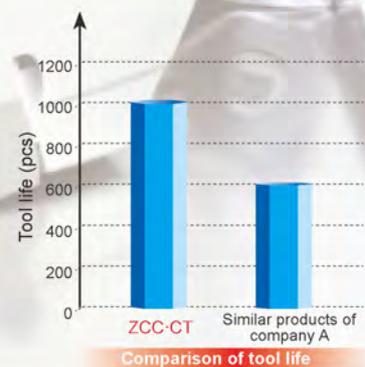
Hardness: HB230-280

Cooling: Dry cutting

Machine: Vertical machining center

Cutting data: $V_c=260\text{m/min}$, $a_p=1.0\text{mm}$, $z=0.1\text{mm/z}$, $a_e=30\text{mm}$

Milling style: Down milling Area of machining: End surface

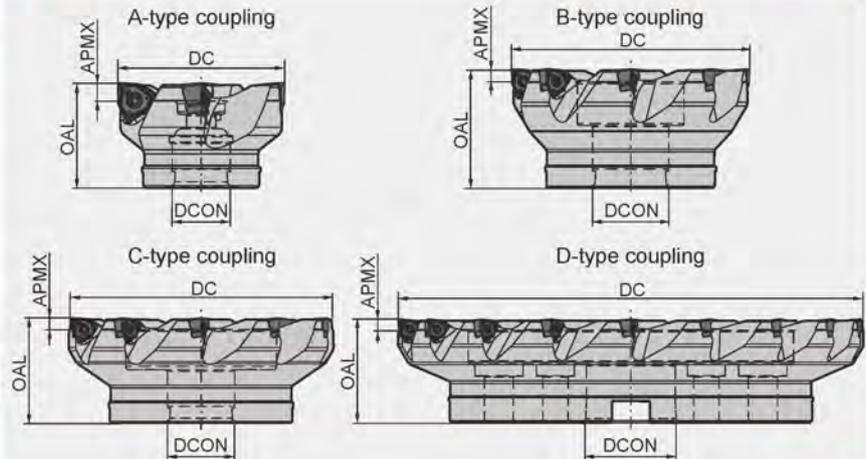


Face milling tools

KAPR:90°



FMP12 P K N



Specification of tools

Type	Stock		Basic dimensions(mm)				Number of teeth Z	Type of coupling	
	R	L	DC	DCON	OAL	APMX			
FMP12	-050-A22-WN06-05C	▲	△	50	22	40	5.7	5	A
	-063-A22-WN06-06C	▲	△	63	22	40	5.7	6	A
	-080-A27-WN06-07C	▲	△	80	27	50	5.7	7	A
	-100-B32-WN06-09	▲	△	100	32	50	5.7	9	B
	-125-B40-WN06-11	▲	△	125	40	63	5.7	11	B
	-160-C40-WN06-14	▲	△	160	40	63	5.7	14	C
	-063-A22-WN08-04C	▲	△	63	22	40	7.7	4	A
	-080-A27-WN08-05C	▲	△	80	27	50	7.7	5	A
	-100-B32-WN08-06	▲	△	100	32	50	7.7	6	B
	-125-B40-WN08-08	▲	△	125	40	63	7.7	8	B
	-160-C40-WN08-10	▲	△	160	40	63	7.7	10	C
	-200-C60-WN08-12	▲	△	200	60	63	7.7	12	C
	-250-C60-WN08-14	▲	△	250	60	63	7.7	14	C
-315-D60-WN08-18	▲	△	315	60	70	7.7	18	D	

▲Stock available △Make-to-order

Spare parts

Diameter DC	Insert	Insert screw	Wrench	
Ø50 -Ø63	WN□U06	I60M3×9	WT09IS	
Ø80 -Ø160				
Ø63	WN□U08	I60M4×10	WT15IS	
Ø80 -Ø125				
Ø160 -Ø315				

Tools code key B26-B27

Grade selection guide B19-B23

Technical data B271-B276

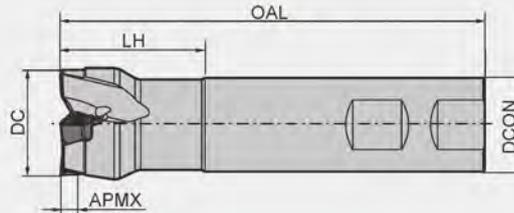
Indexable milling tools
Face milling tools

Face milling tools

KAPR:90°



FMP12 P K N



Specification of tools

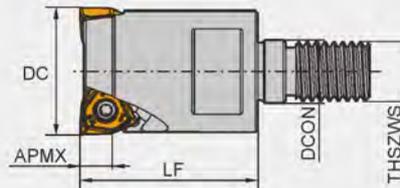
Type	Stock	Basic dimensions(mm)					Number of teeth Z	Type of coupling
		DC	DCON	OAL	LH	APMX		
FMP12 -025-XP25-WN06-02C	▲	25	25	100	30	5.7	2	XP
-032-XP25-WN06-03C	▲	32	25	120	40	5.7	3	XP
-040-XP32-WN06-04C	▲	40	32	140	40	5.7	4	XP
-050-XP40-WN06-05C	▲	50	40	169	40	5.7	5	XP

▲Stock available △Make-to-order



QCH-*WN*M*Series

P M K N S



Specification of tools

Type	Stock	Basic dimensions(mm)					Applicable inserts	Number of teeth Z	Weight (kg)
		DC	DCON	LF	APMX	THSZWS			
QCH -25-WN06-M12-02	▲	25	12.5	35	5.7	12	WN□U0604□□PN□□	2	0.12
-32-WN06-M16-03	▲	32	17	45	5.7	16		3	0.23
-40-WN06-M16-04	▲	40	17	45	5.7	16		4	0.26

▲Stock available △Make-to-order

Spare parts

Diameter DC	Inserts	Insert screw	Wrench	
Ø25-Ø50	WN□U06	I60M3×9	WT091P	
Ø25-Ø40	WN□U06	I60M3×9	WT091P	

Tools code key

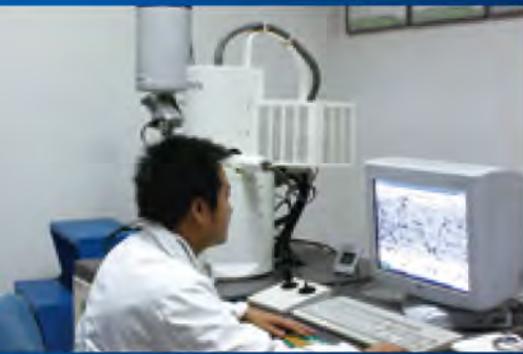
B26-B27

Grade selection guide

B19-B23

Technical data

B271-B276



Safety & environmental protection

Cemented carbide products are hard and fragile, which are easily damaged due to improper carrying or clamping, so please be careful with them.

Spattering of chips may occur and a lot of cooling liquid is used during the machining process, so protective measures should be used, such as ventilating equipment, machine protective shield, safeguard glasses, protective clothes, and so on. Please take care to protect hand when clamping inserts with sharp edge.



Welcome to call our technical service hotline: 4008815915

Quality guarantee

We have been awarded GB/T19001-ISO9001 Quality System Certificate. All our products are inspected strictly.



ZCC-CT

Zhuzhou Cemented Carbide Cutting Tool Co.Ltd(ZCCCT) is the research, production and sales base of CNC cutting tools with large production scale, advanced equipments and leading technology strength in China.

—Starting from the very beginning of material selection, we strictly control each procedure and implement refined management to guarantee the stable quality of products.

—Our research and application experts constantly pay close attention to the latest development of materials and cutting technology to provide high-quality and high-efficiency cutting tools and complete solutions to our customers.

—Our sales and service network can be found all over China and spanning the globe. We offer considerate and professional technology services regarding orders of standard or non-standard tailor-made products.



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